

FIG. 1A

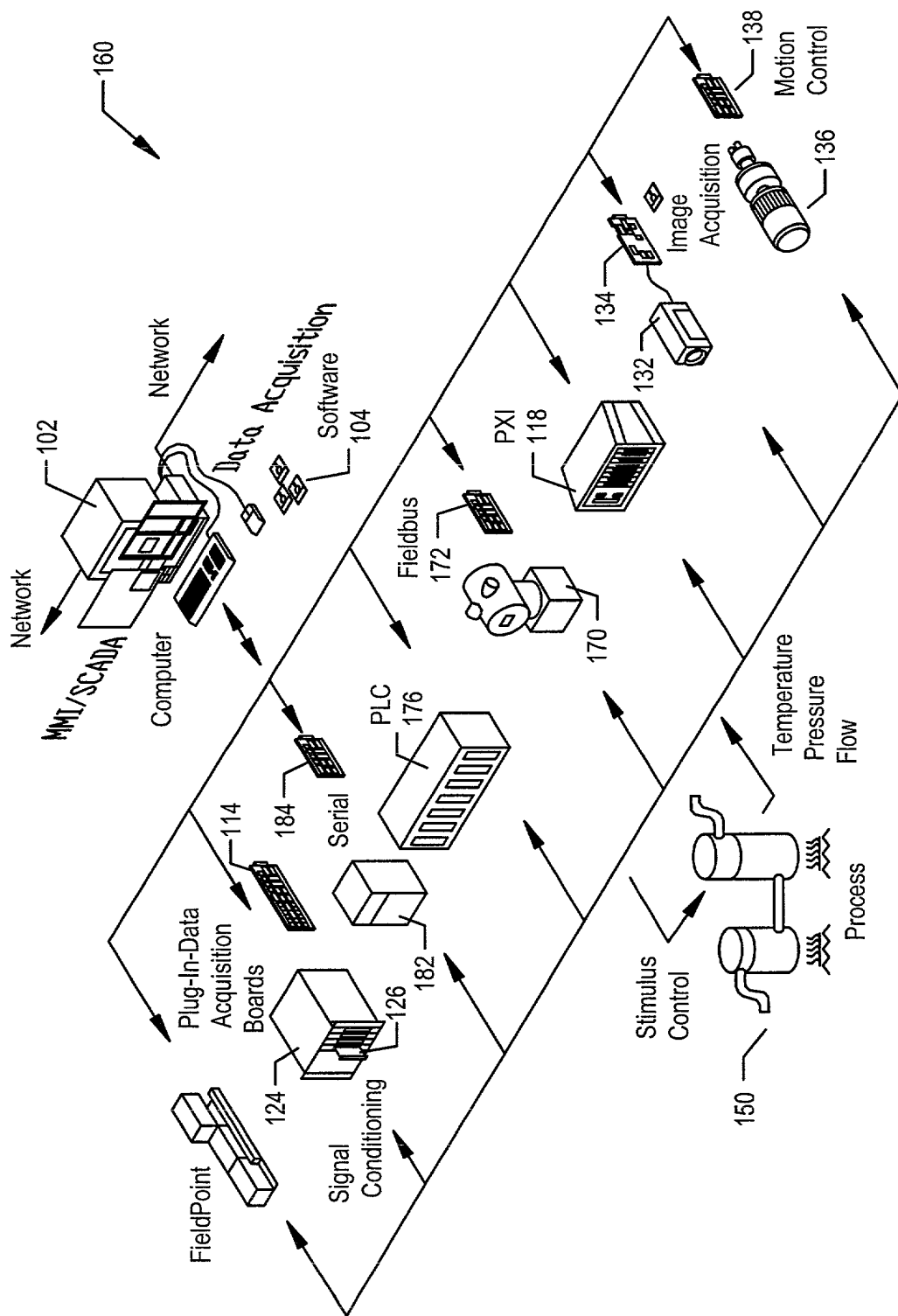


FIG. 1B

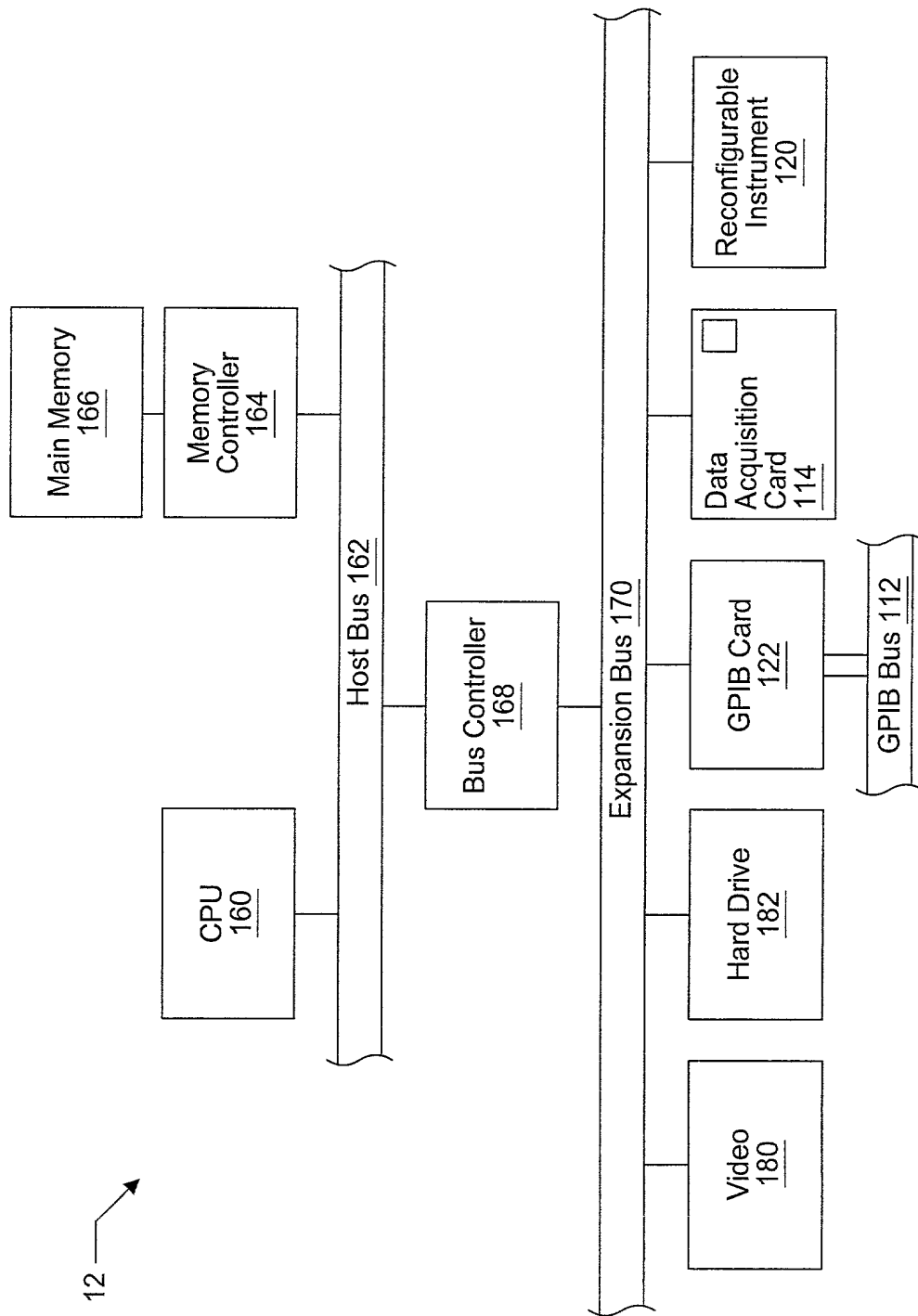


Figure 2

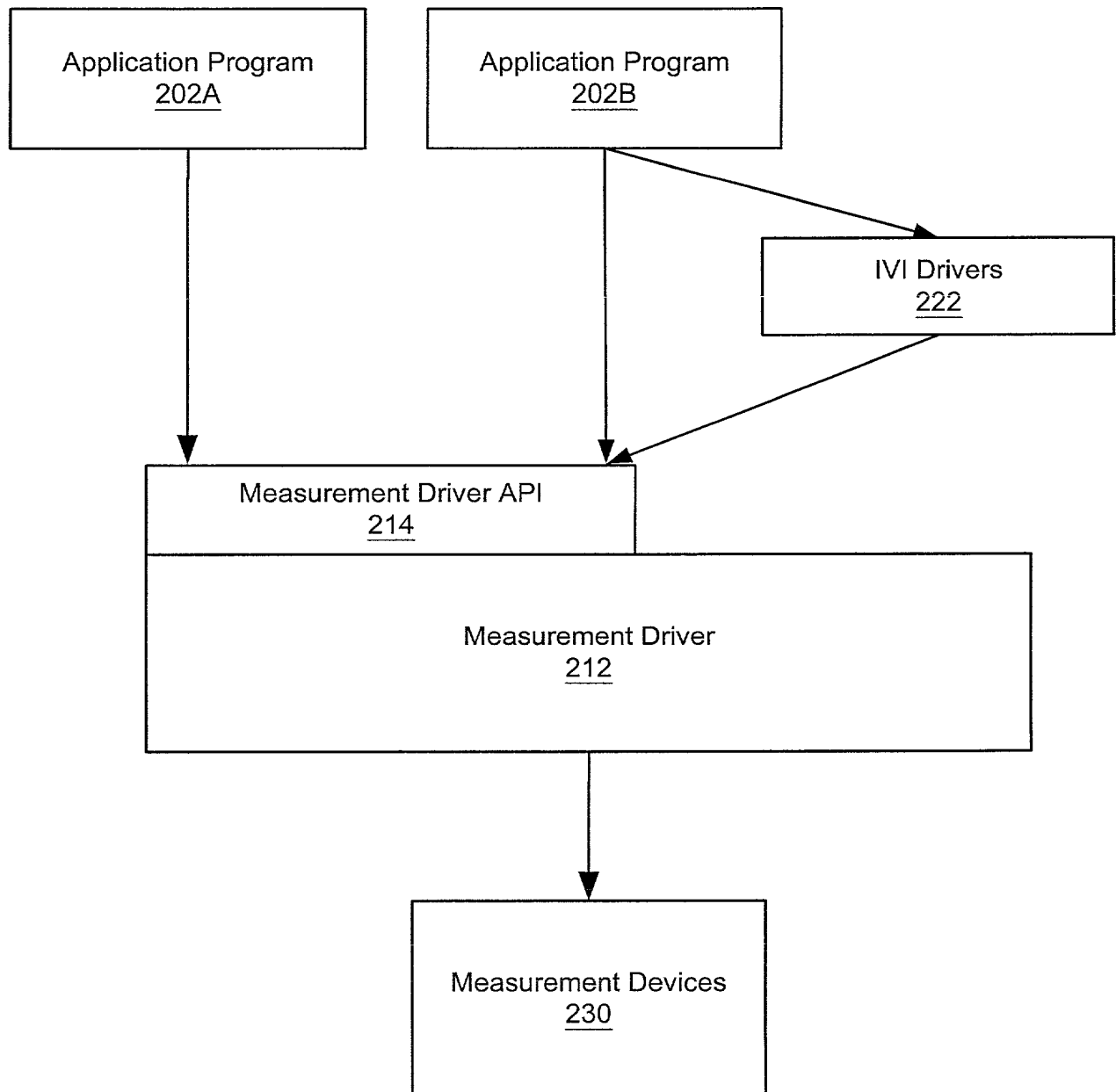


Figure 3

Measurement Driver
Components
400

Measurement Driver
Program Products
450

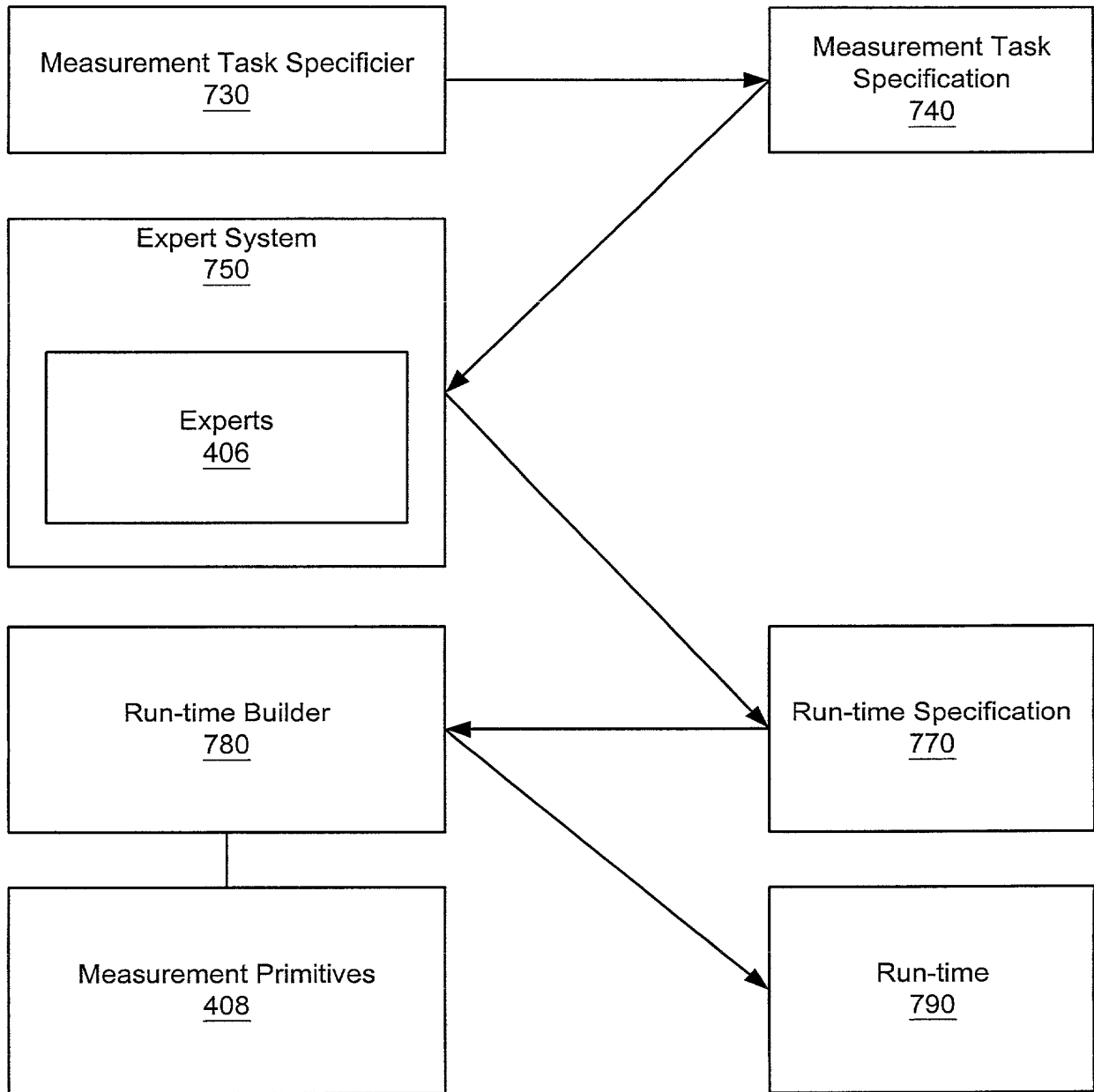


Figure 4

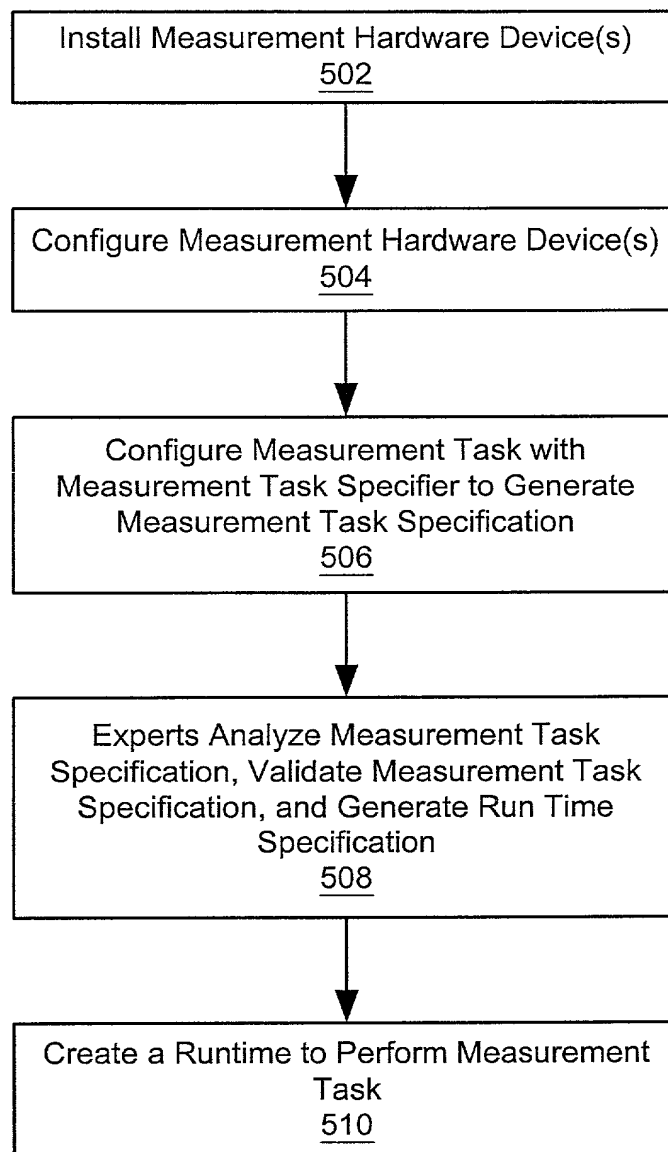


Figure 5

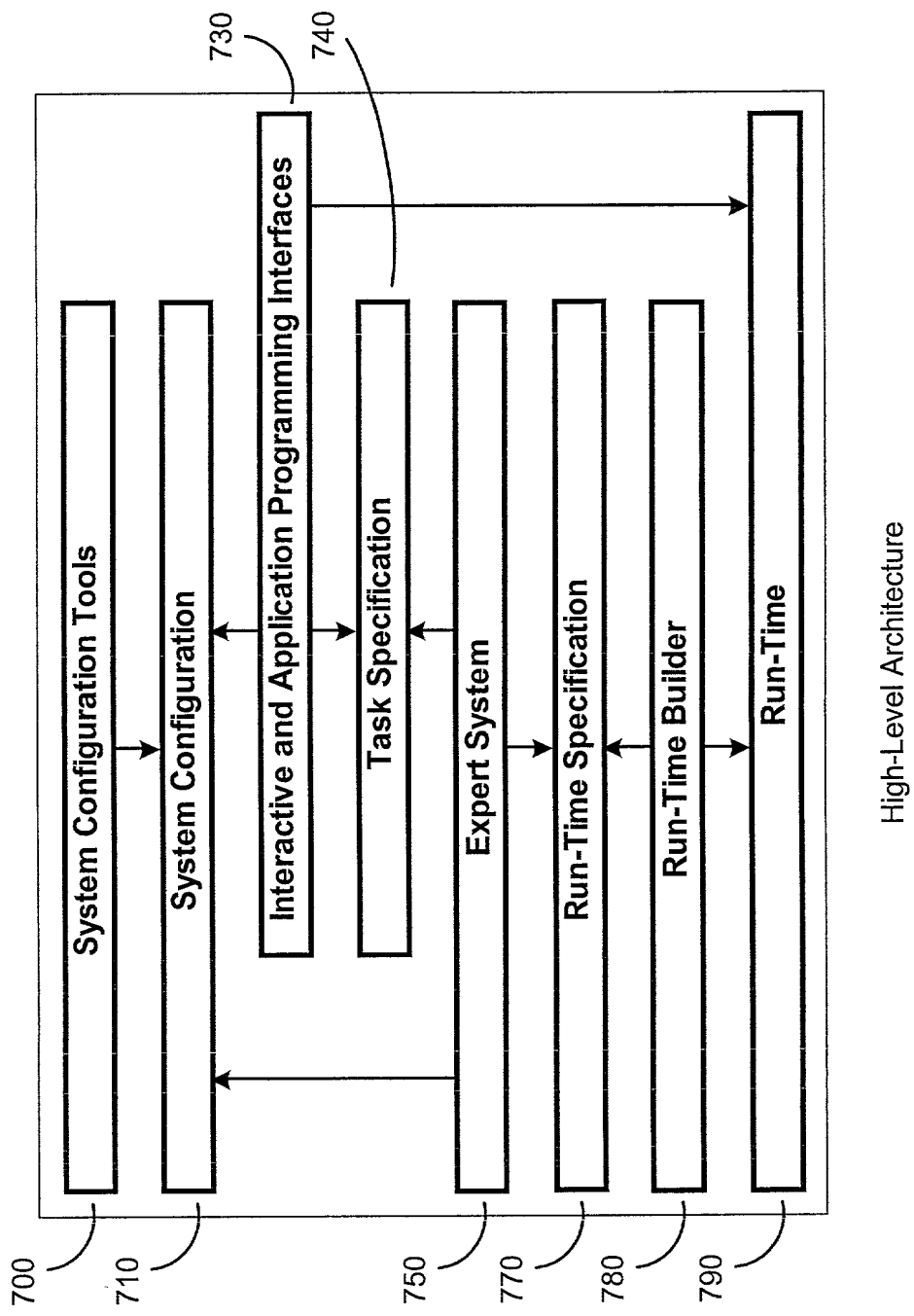


Figure 6

System Configuration and Task Specification

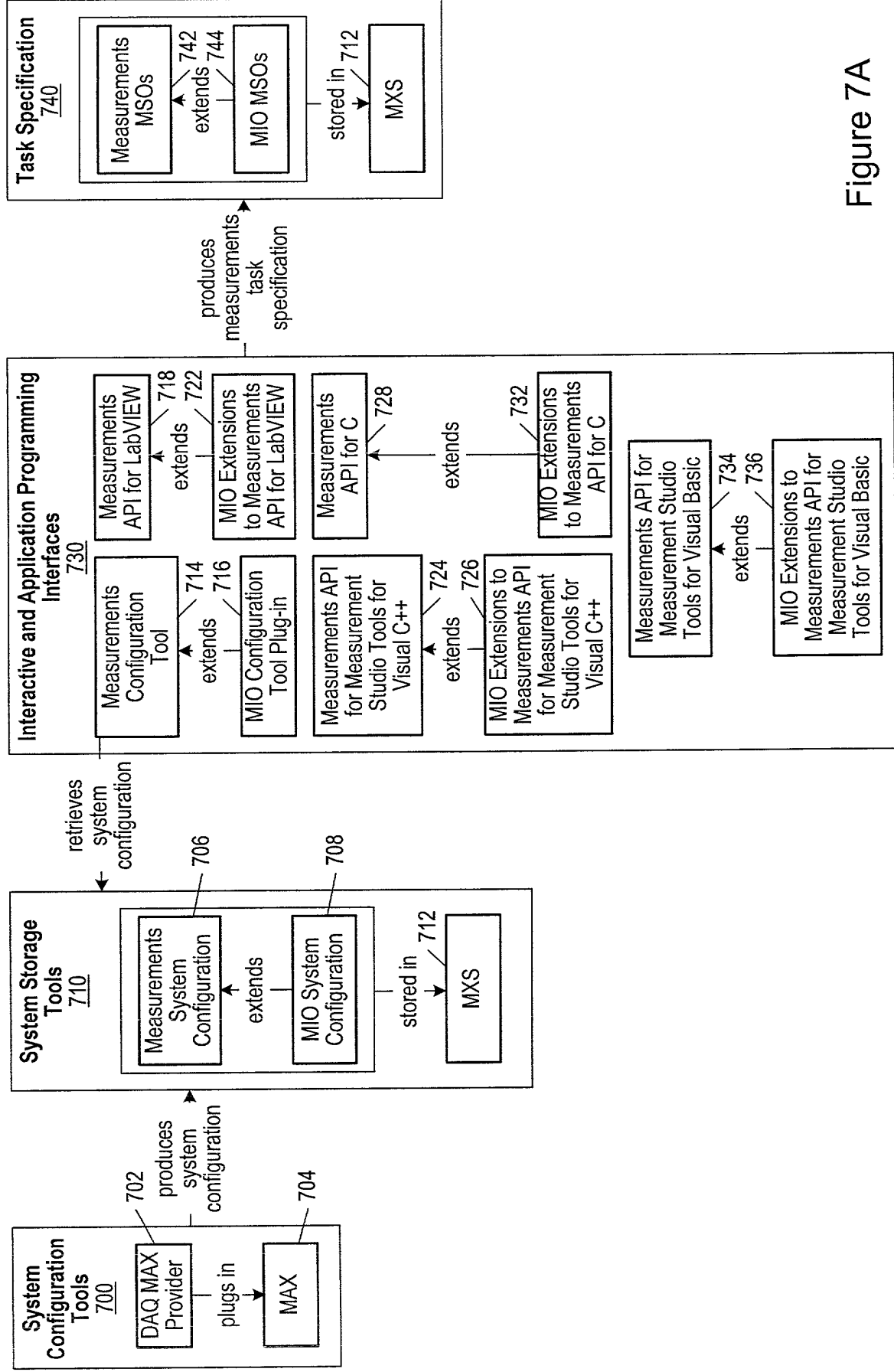


Figure 7A

Compiling Task Specification to Task Run-time Specification

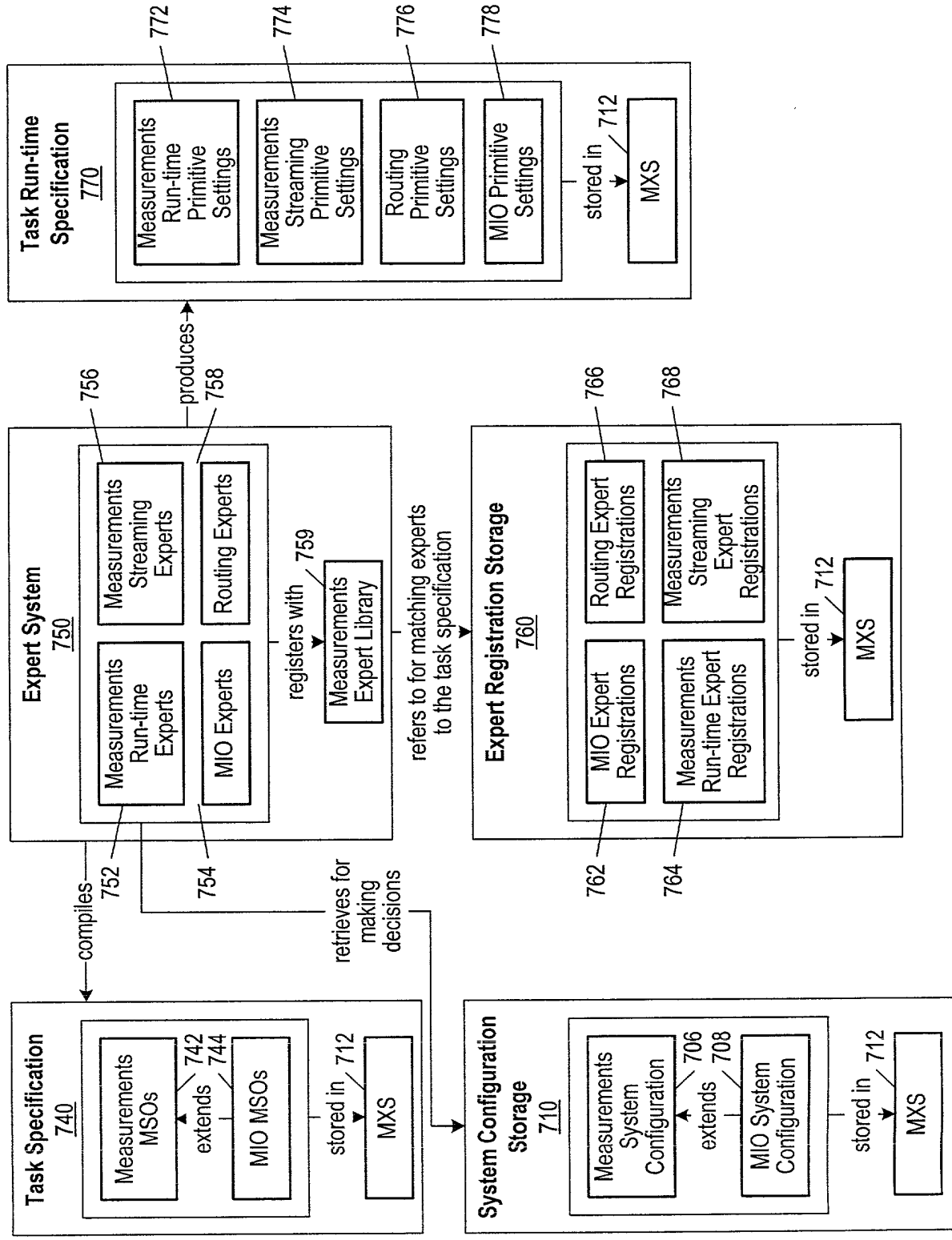


Figure 7B

Building Task Run-time from Task Run-time Specification

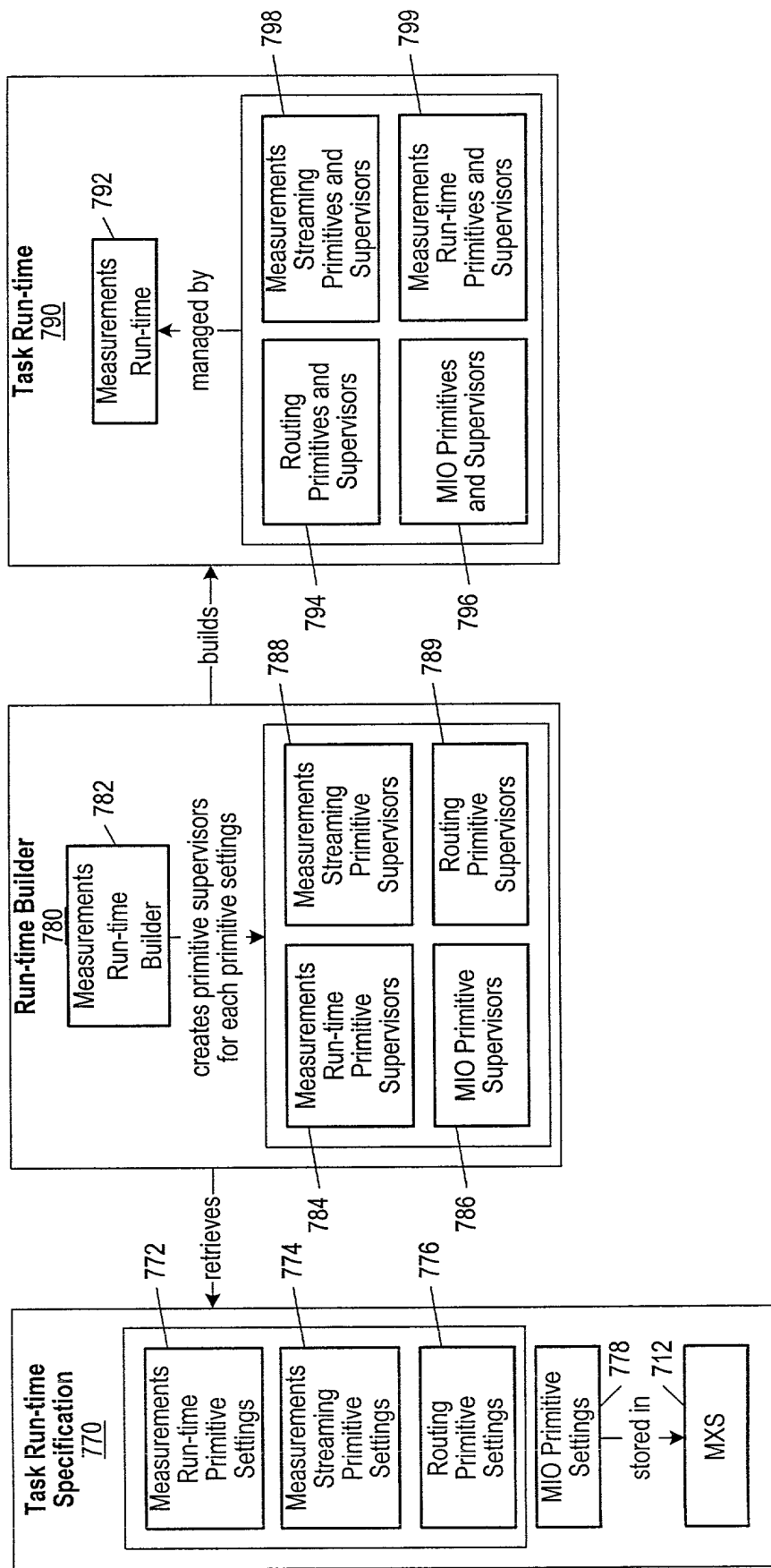


Figure 7C

Executing Tasks

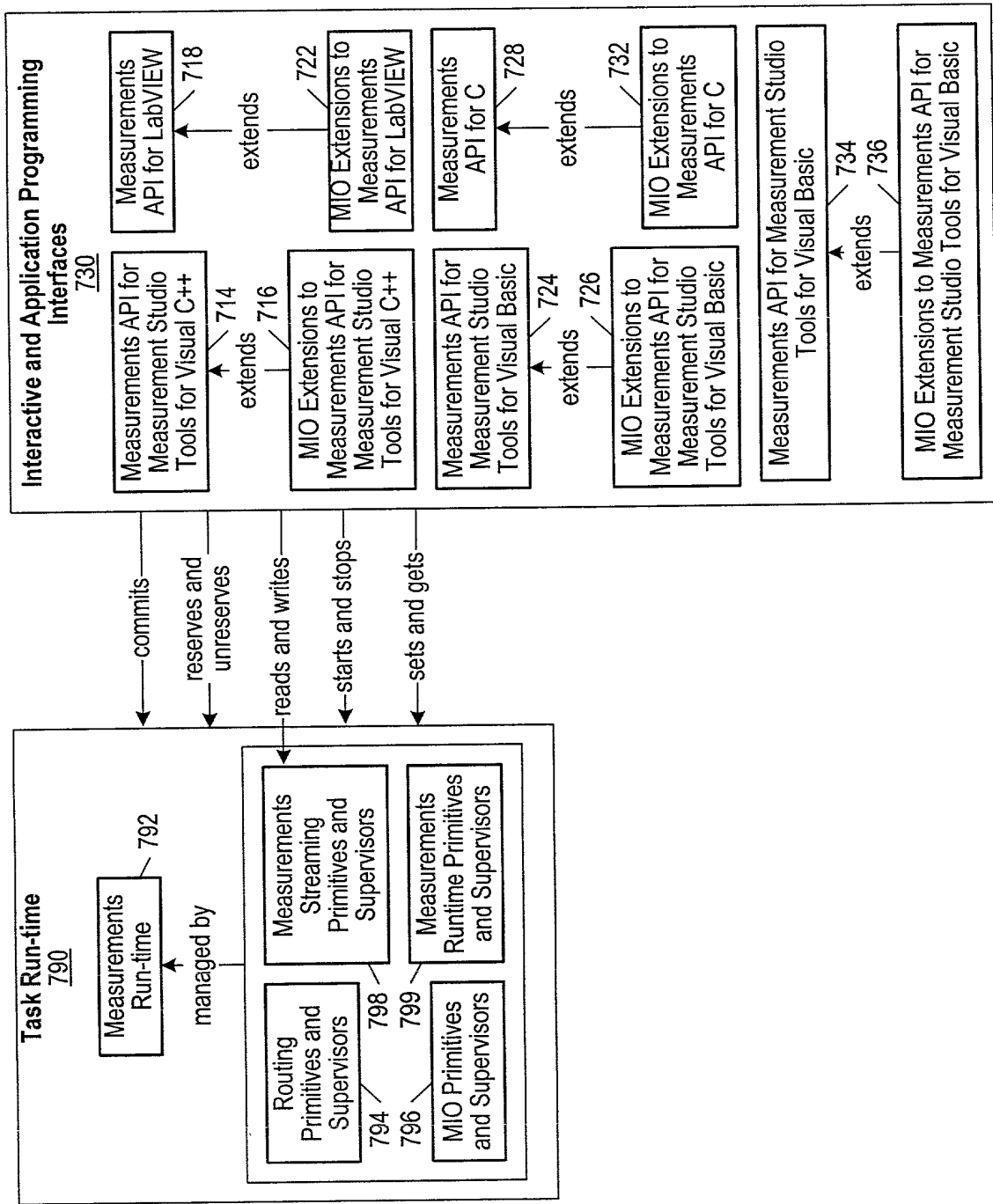


Figure 7D

Packages for System Configuration and Task Specification

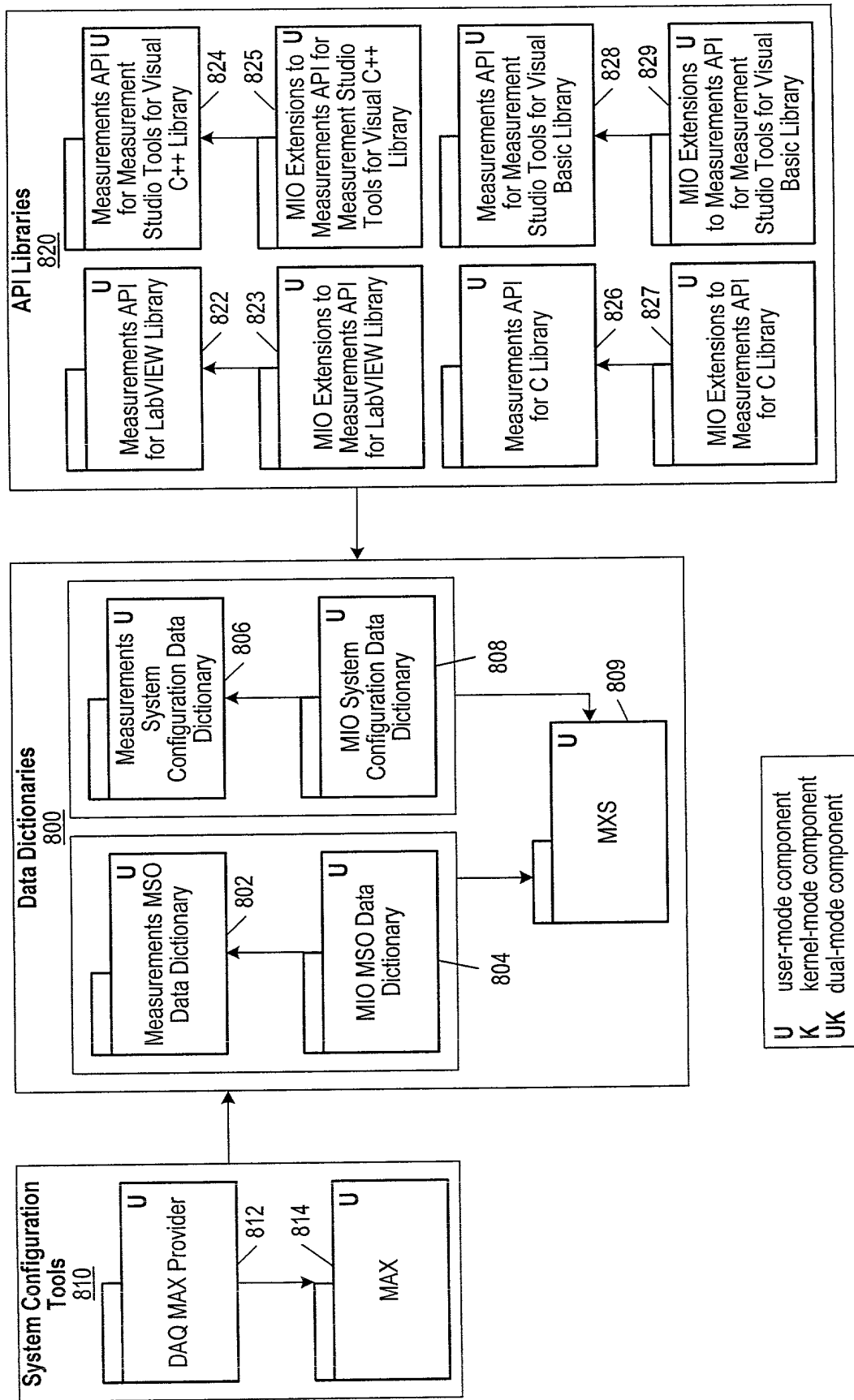


Figure 8A

Packages for Compiling Task Specification to Run-time Specification

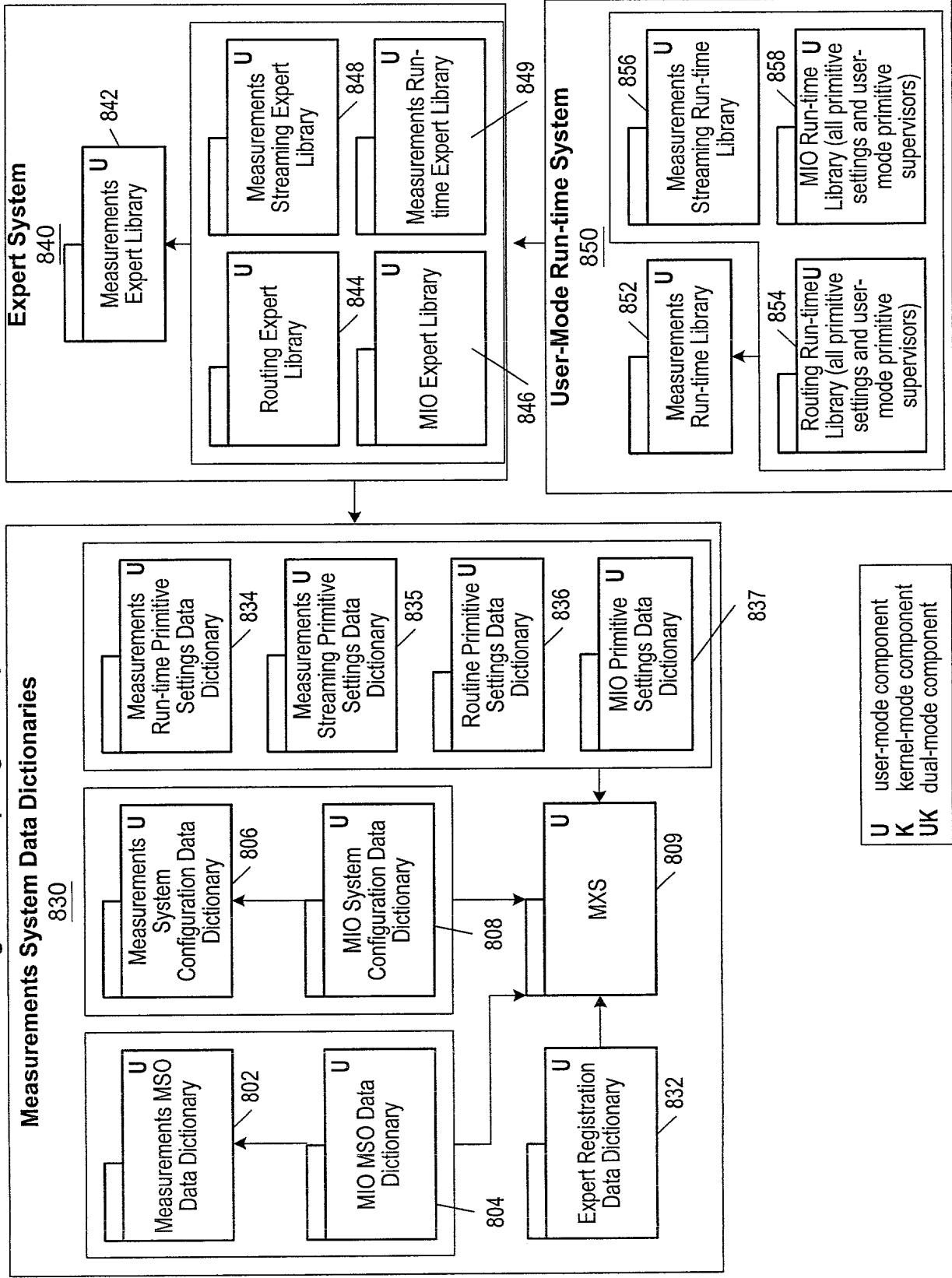


Figure 8B

Packages for Building Task Run-time from Run-time Specification

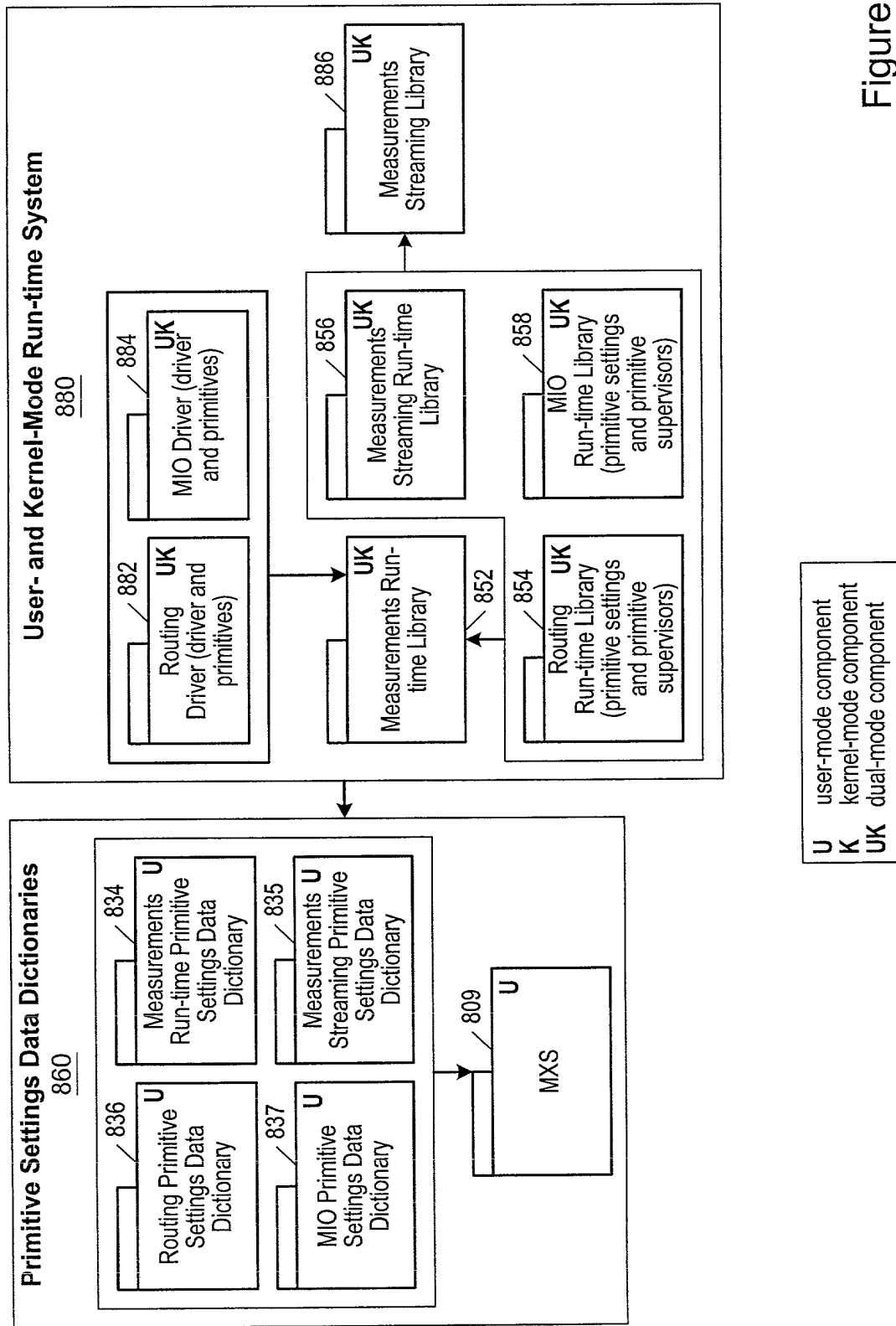


Figure 8C

State Diagram for Measurement Tasks

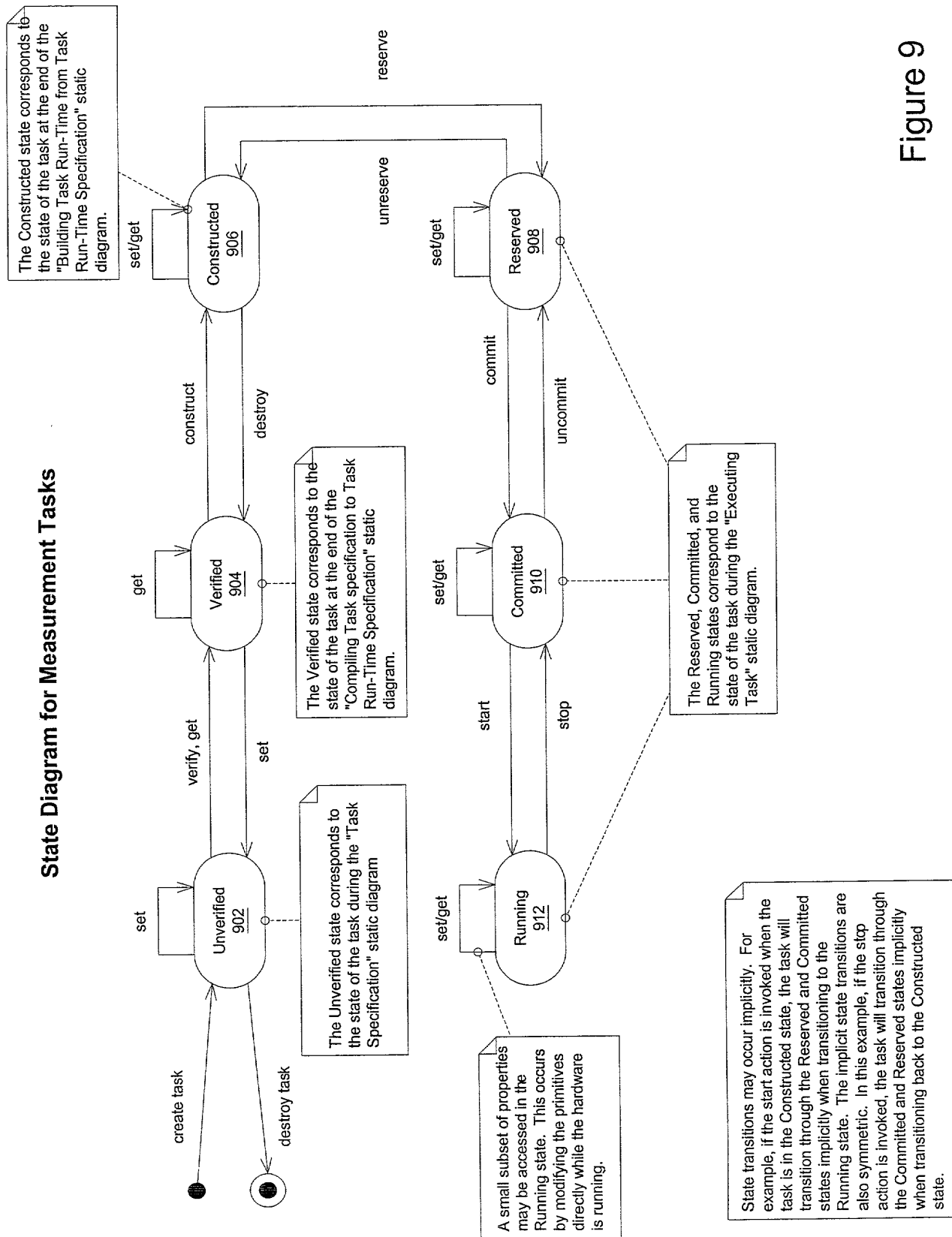


Figure 9

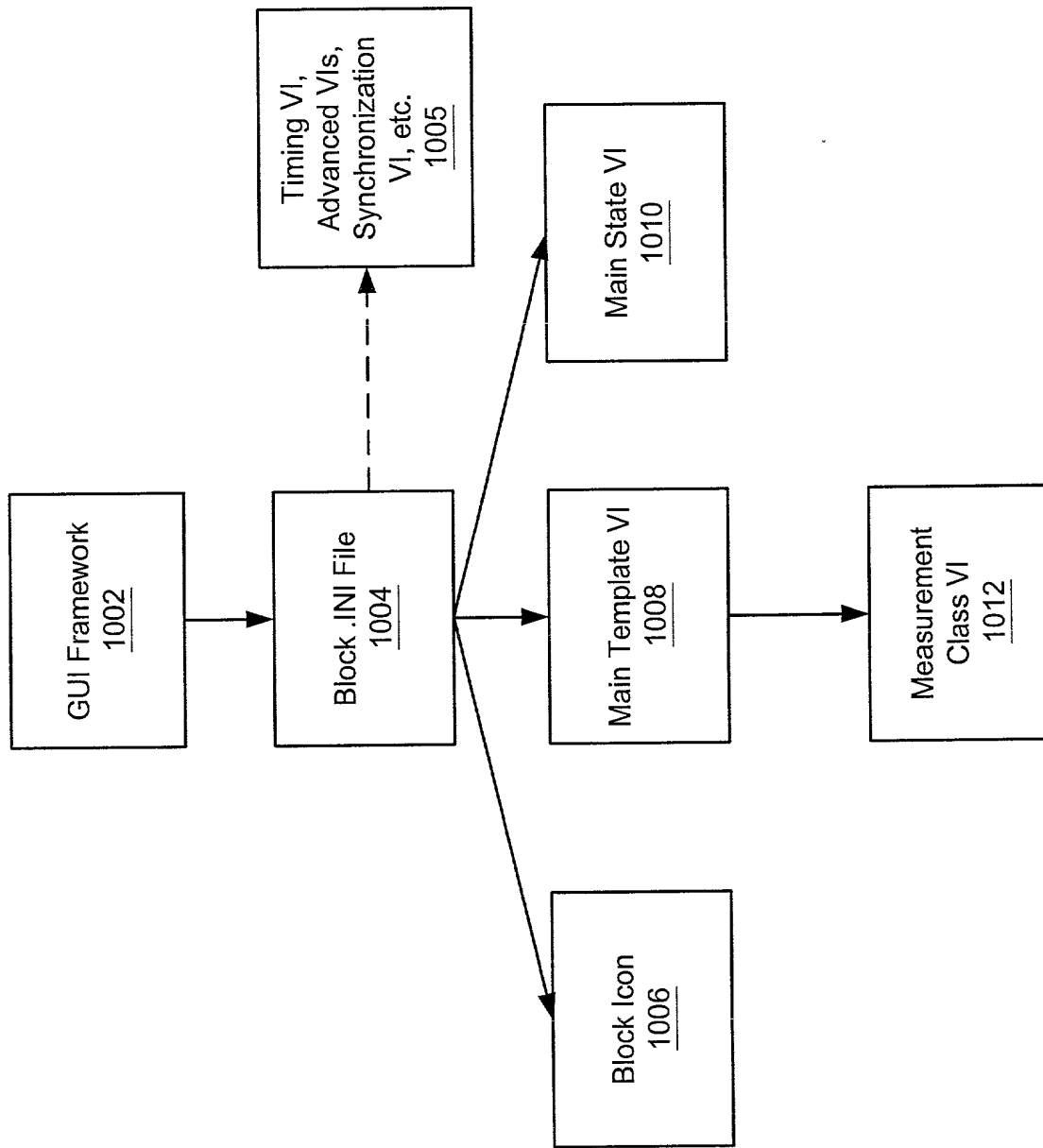


Figure 10

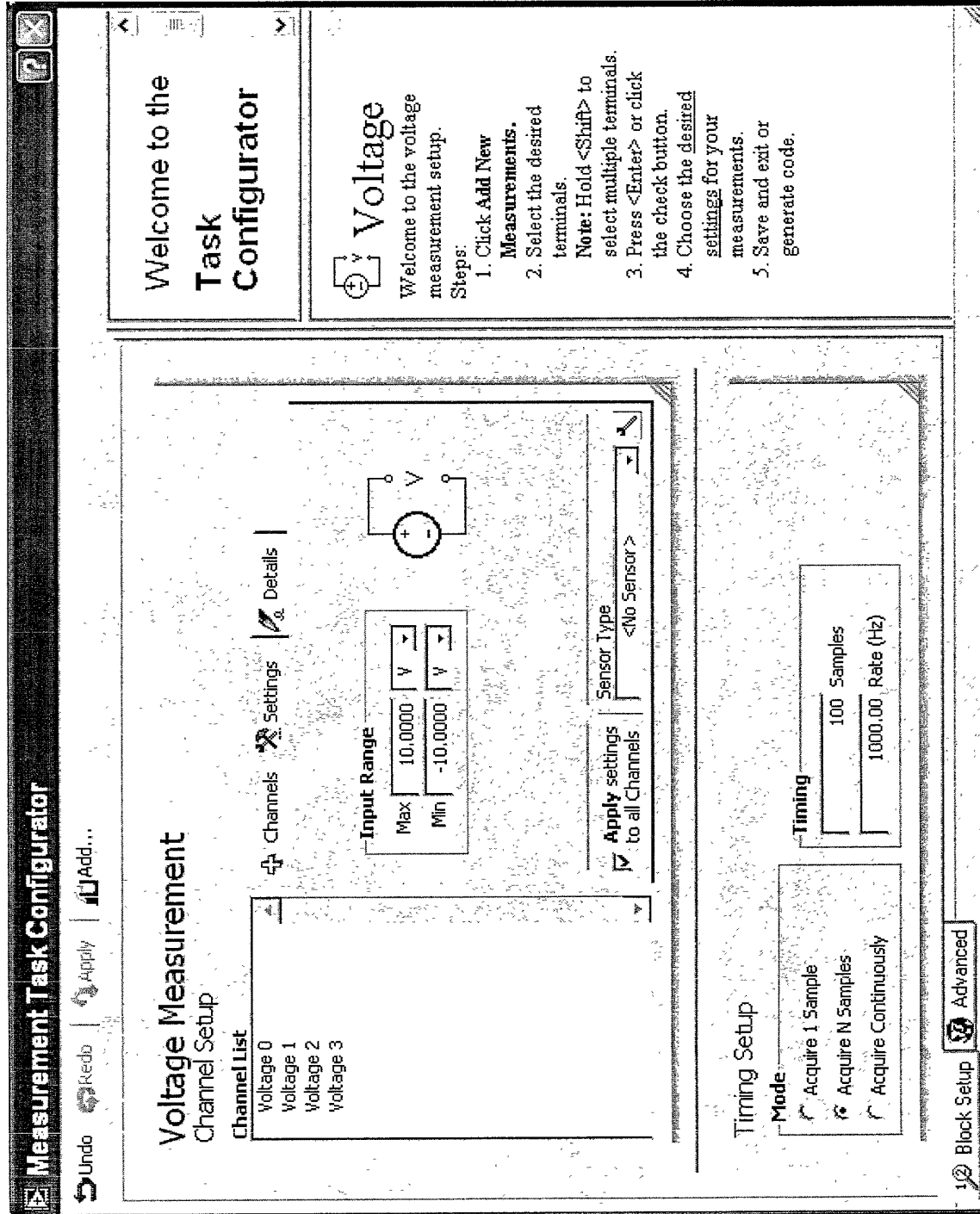


Figure 11

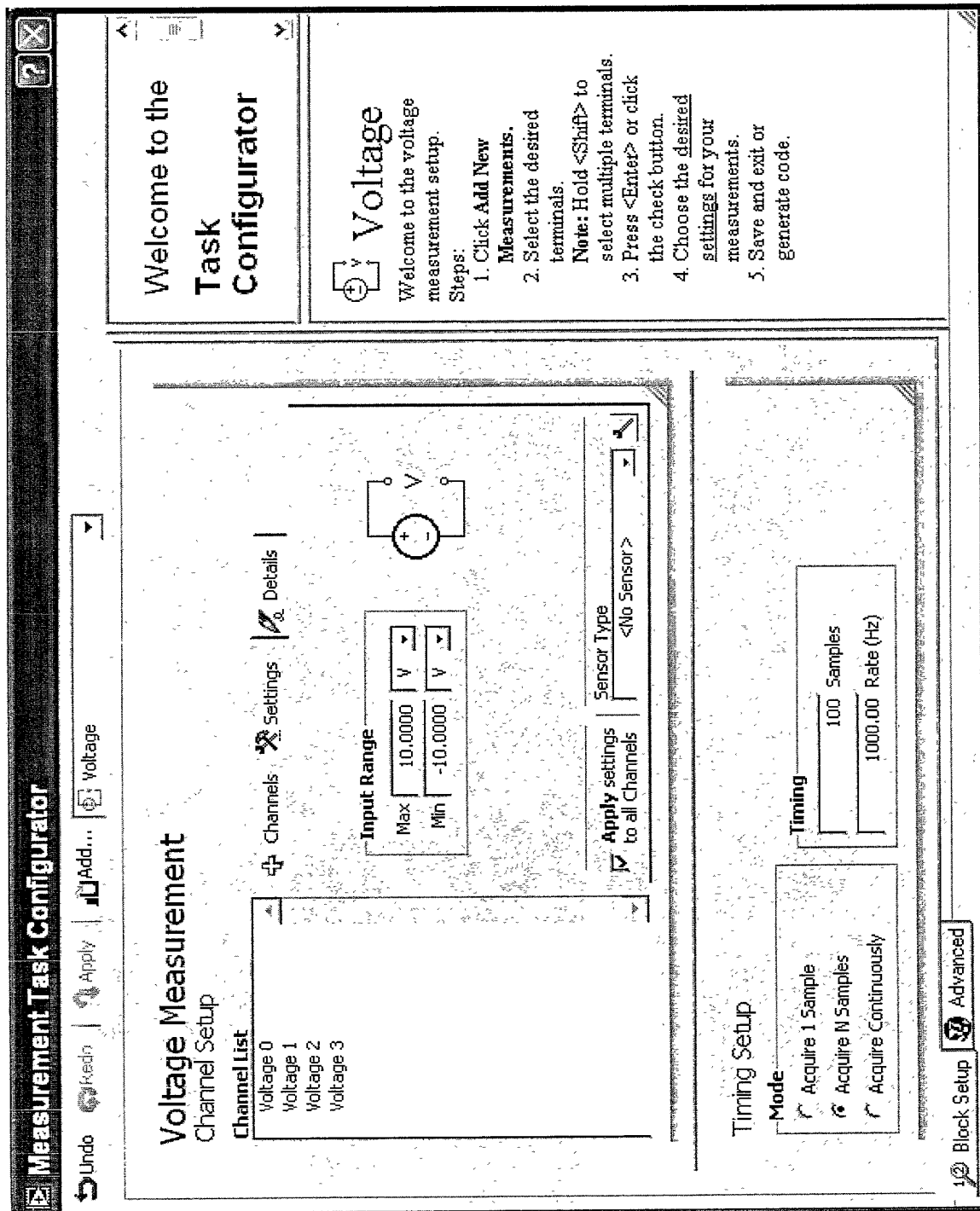


Figure 12B

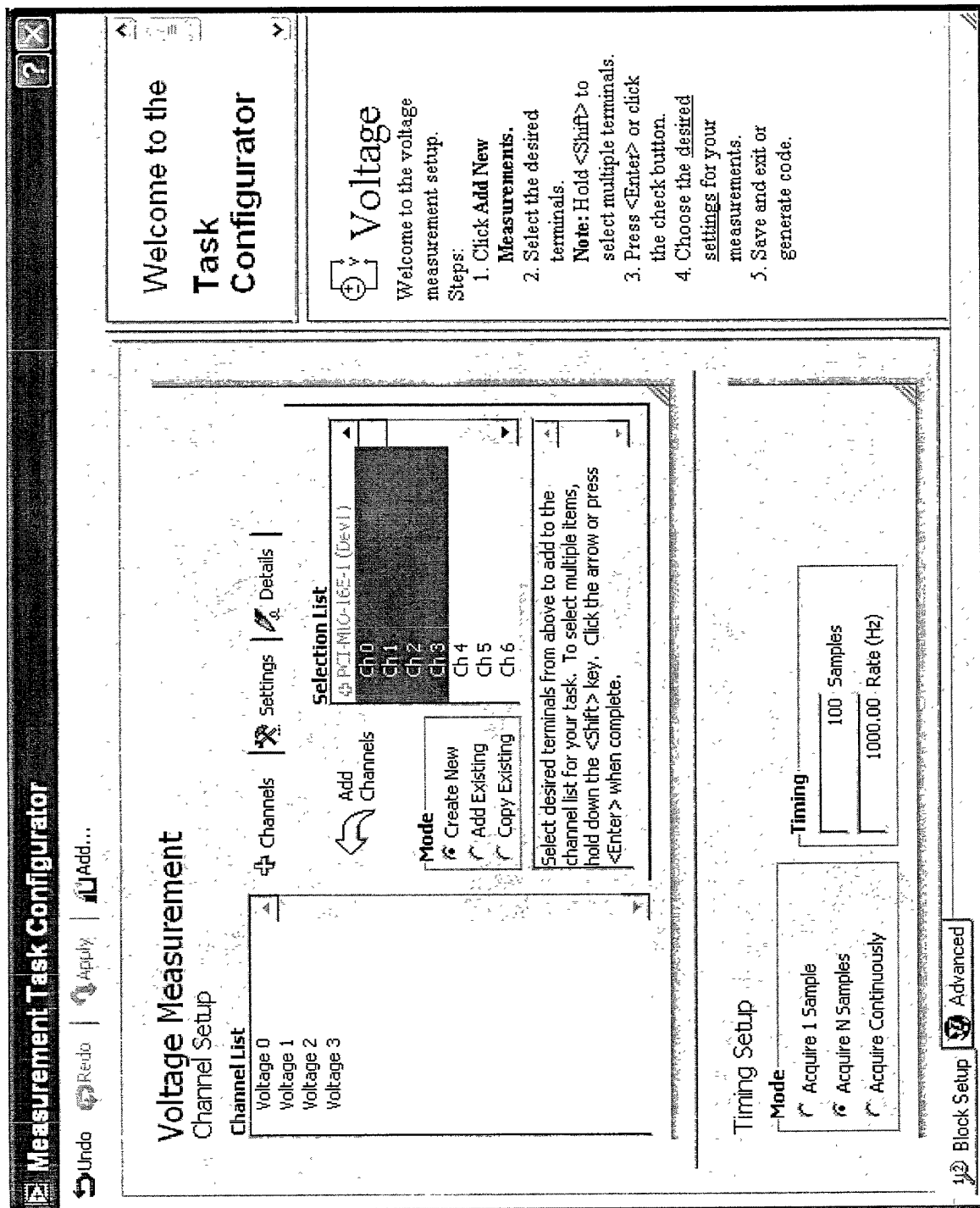


Figure 12C

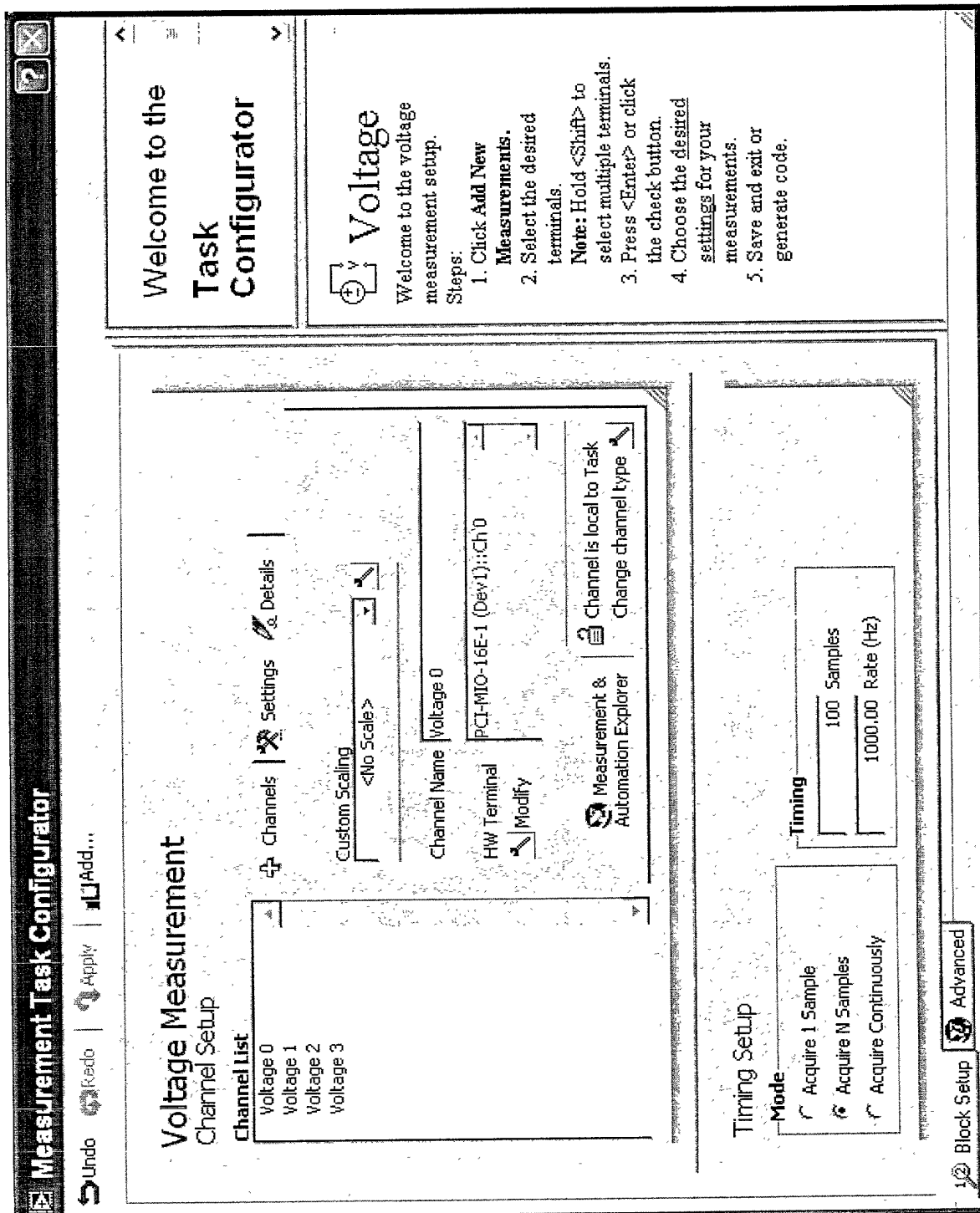


Figure 12D

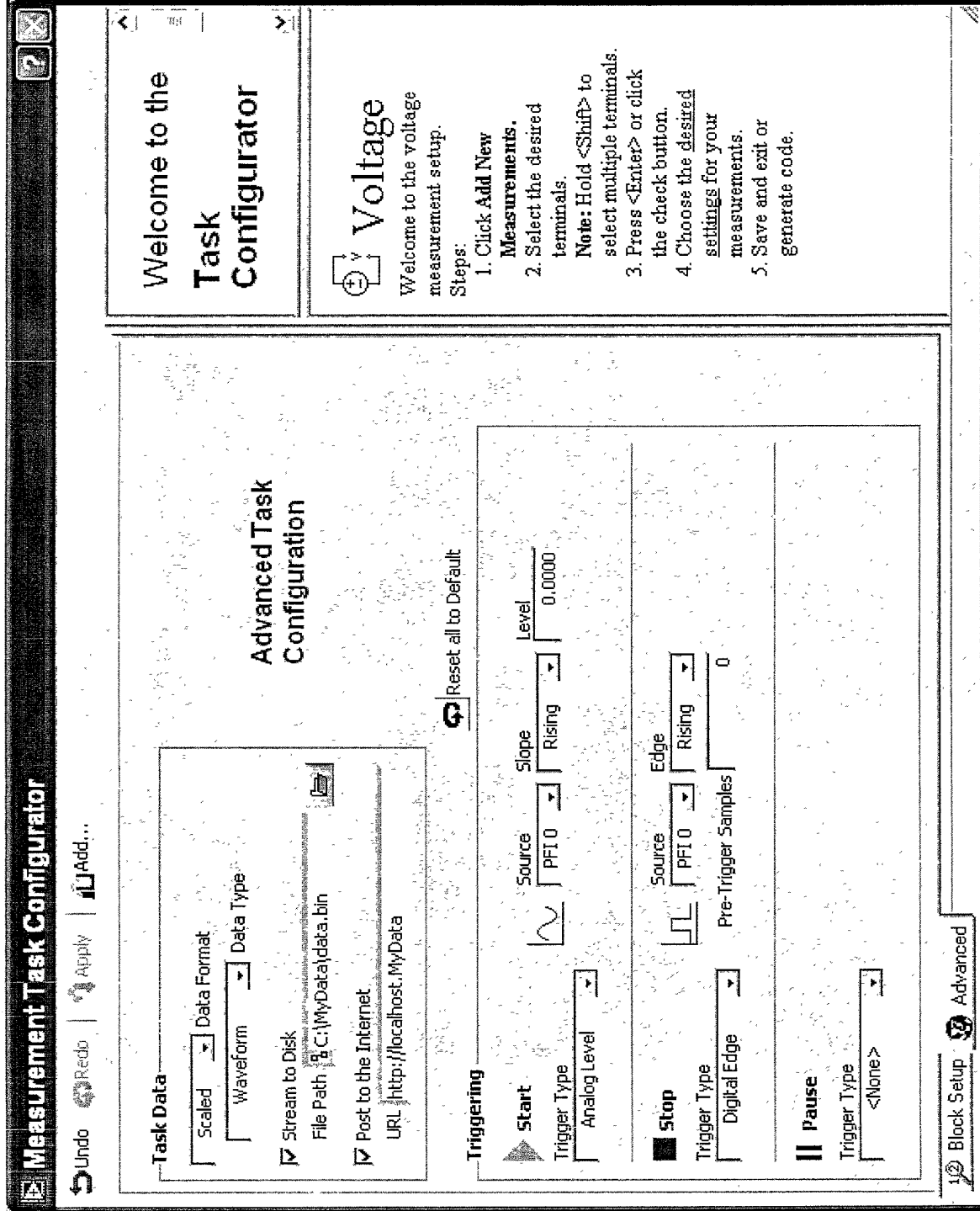


Figure 13

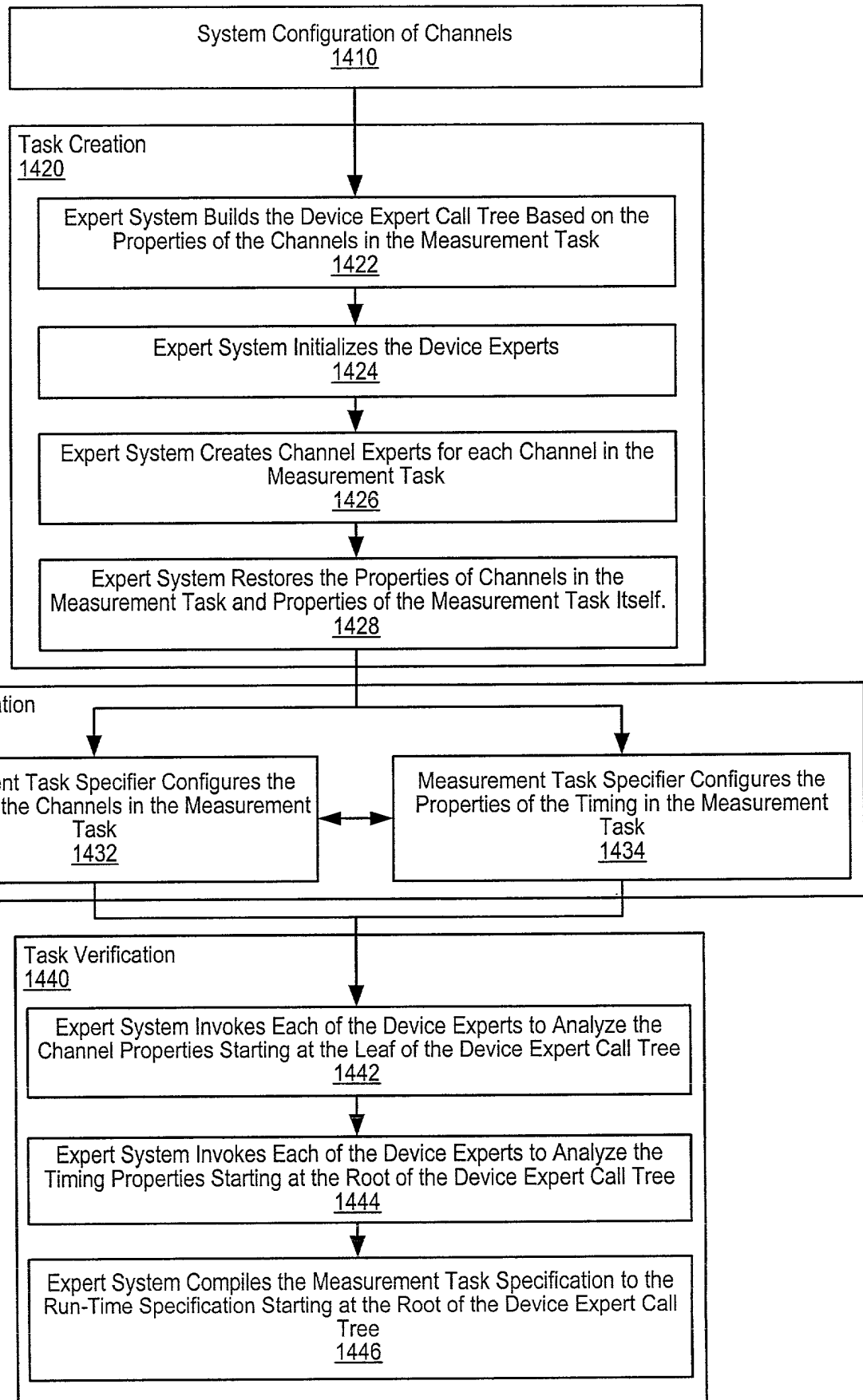


Figure 14

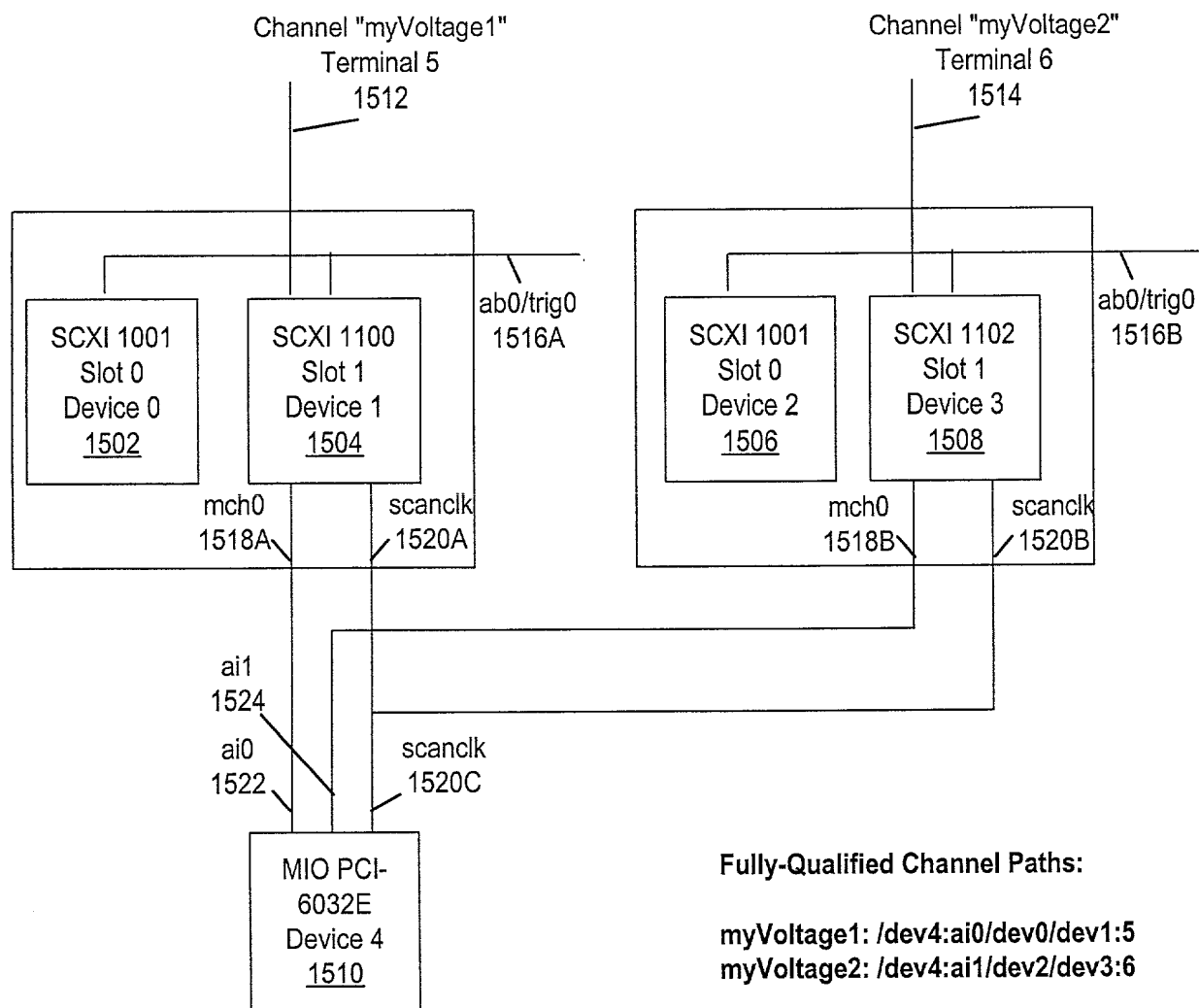
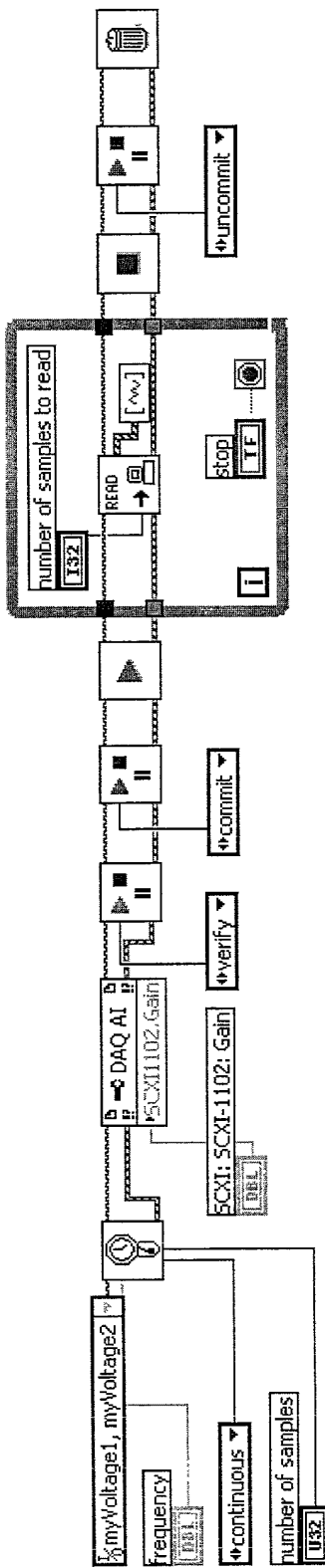
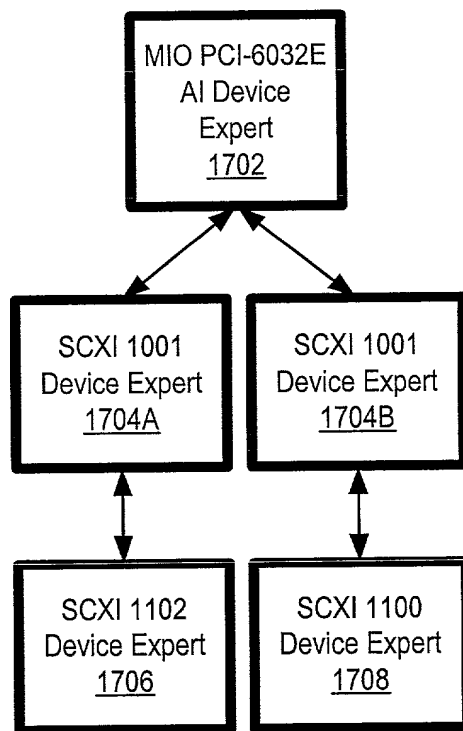


Figure 15



Voltage On Two Channels with Two SCXI Modules in Two
SCXI Chassis Connected to an MIO DAQ Device

Figure 16



Create Device Expert Call Tree

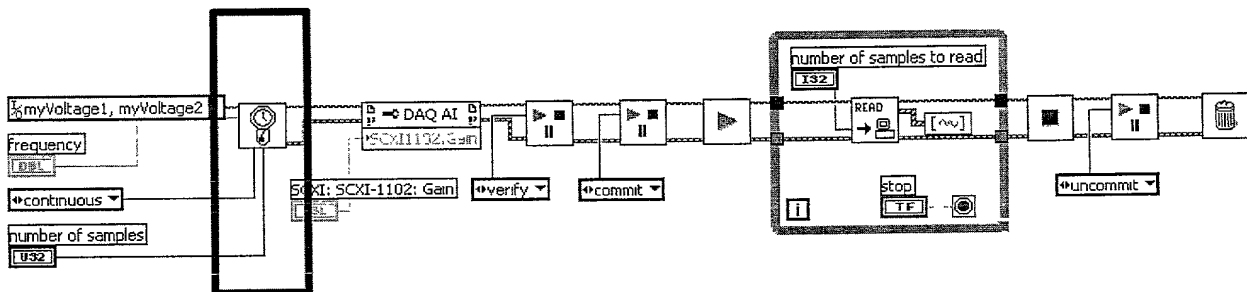


Figure 17

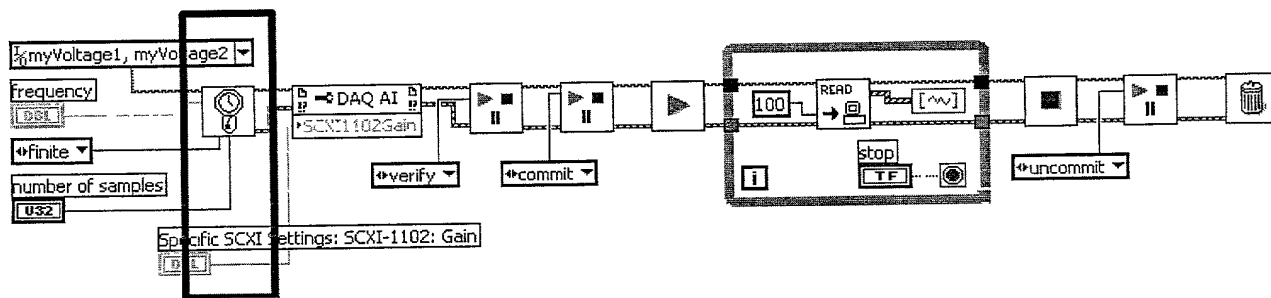
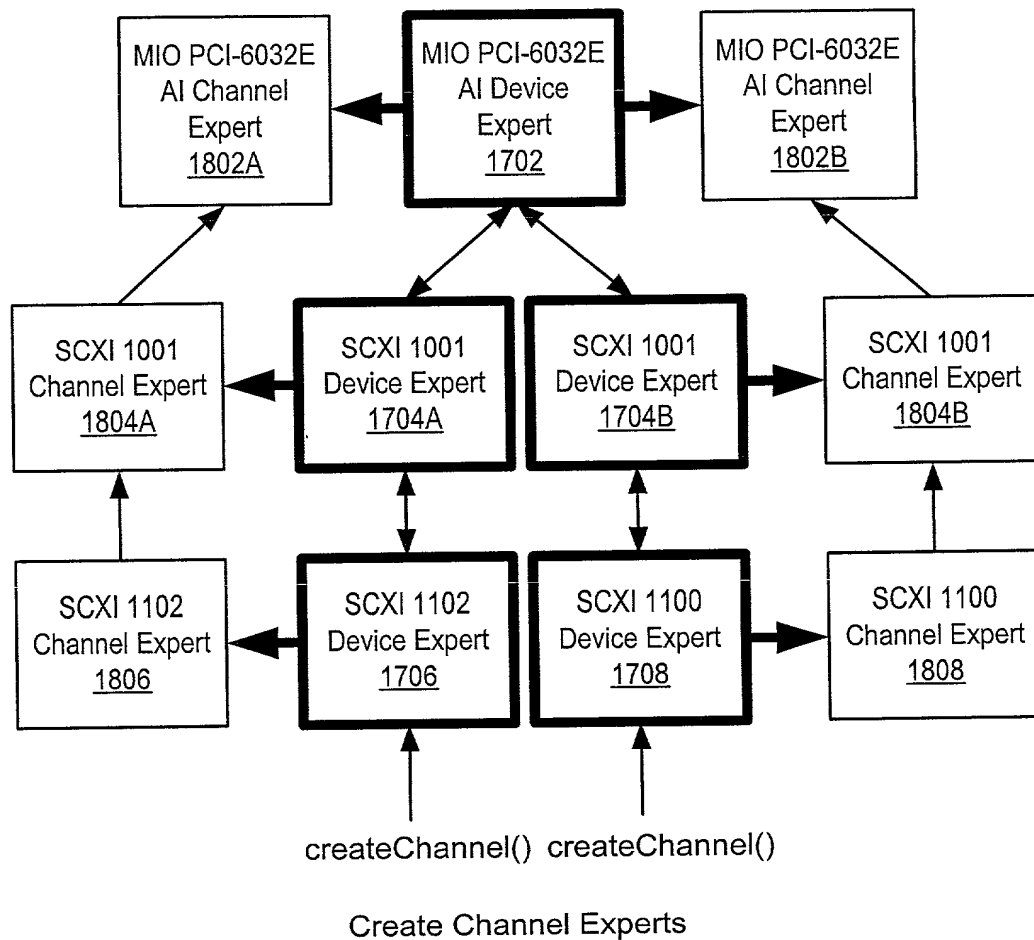
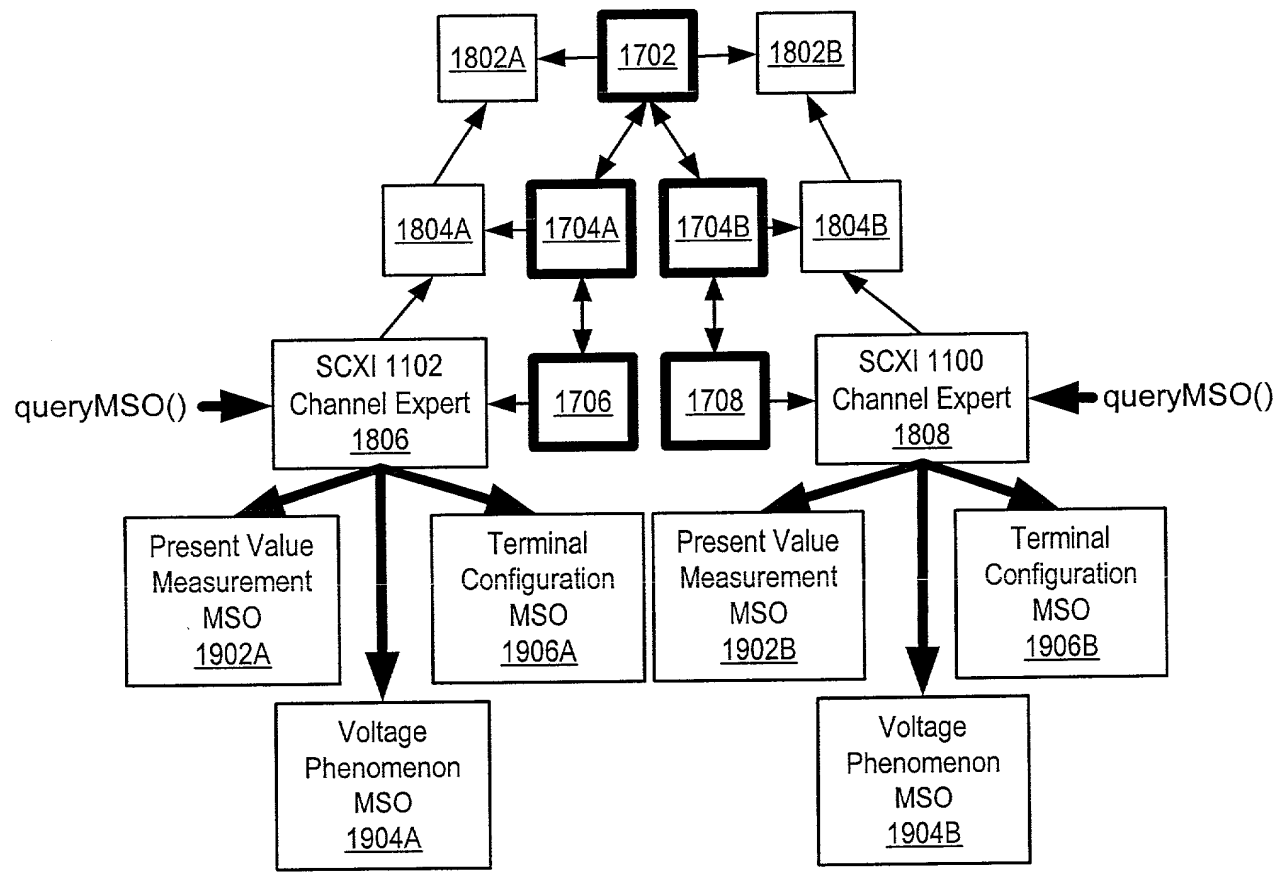


Figure 18

FIGURE 19-26



Deserialize Named Channel MSOs

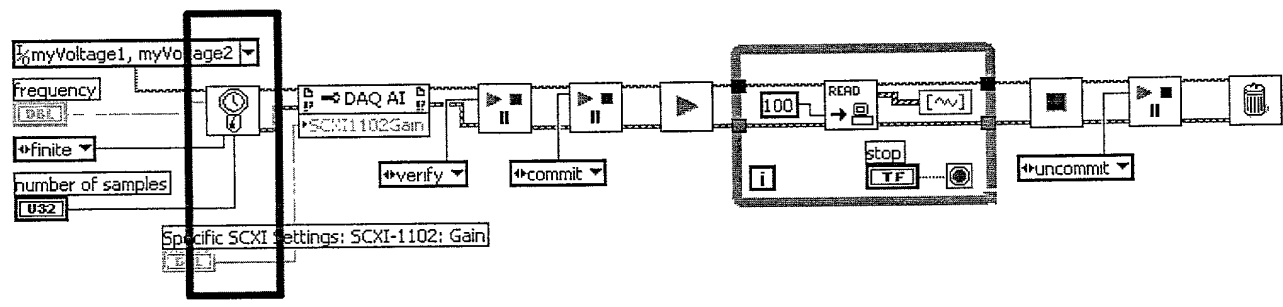
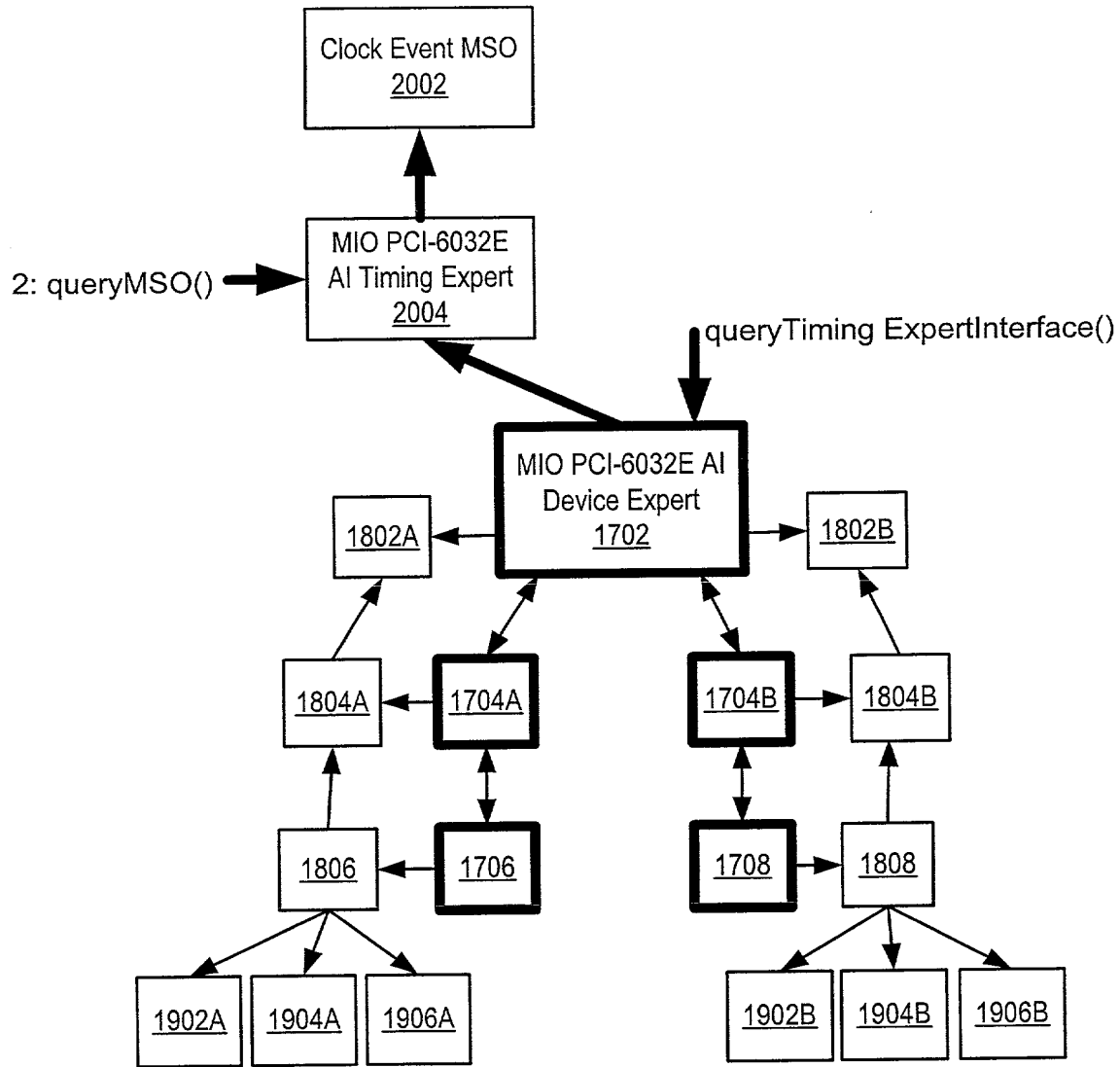


Figure 19



Configure Timing Experts

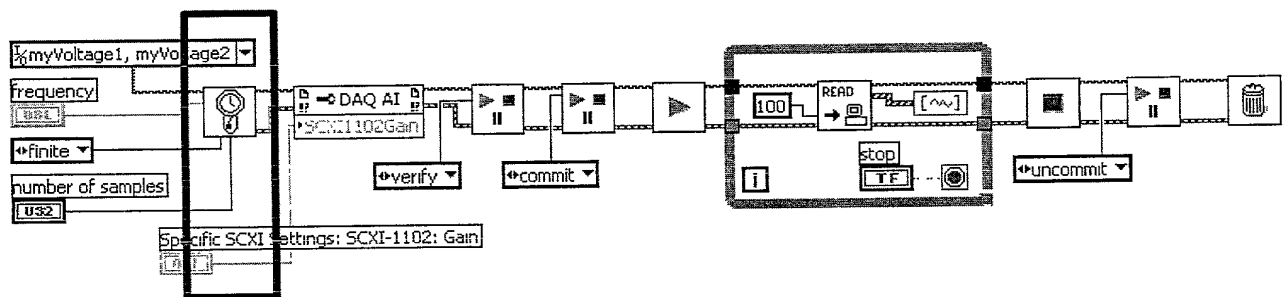
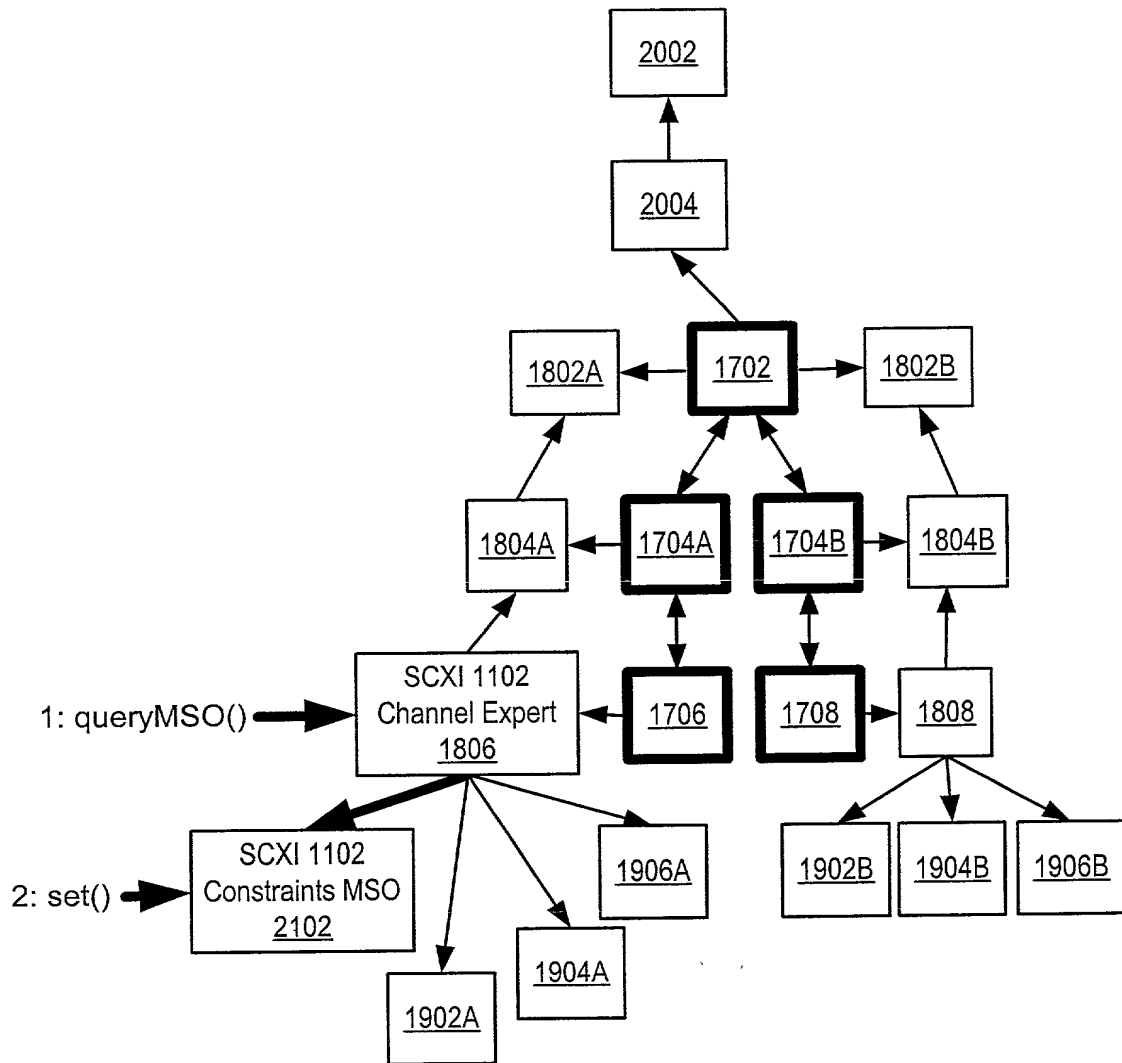


Figure 20



MSO Set Calls

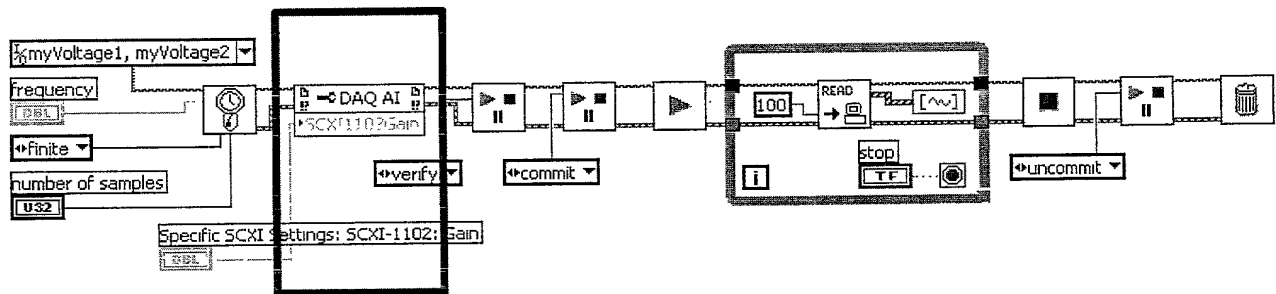
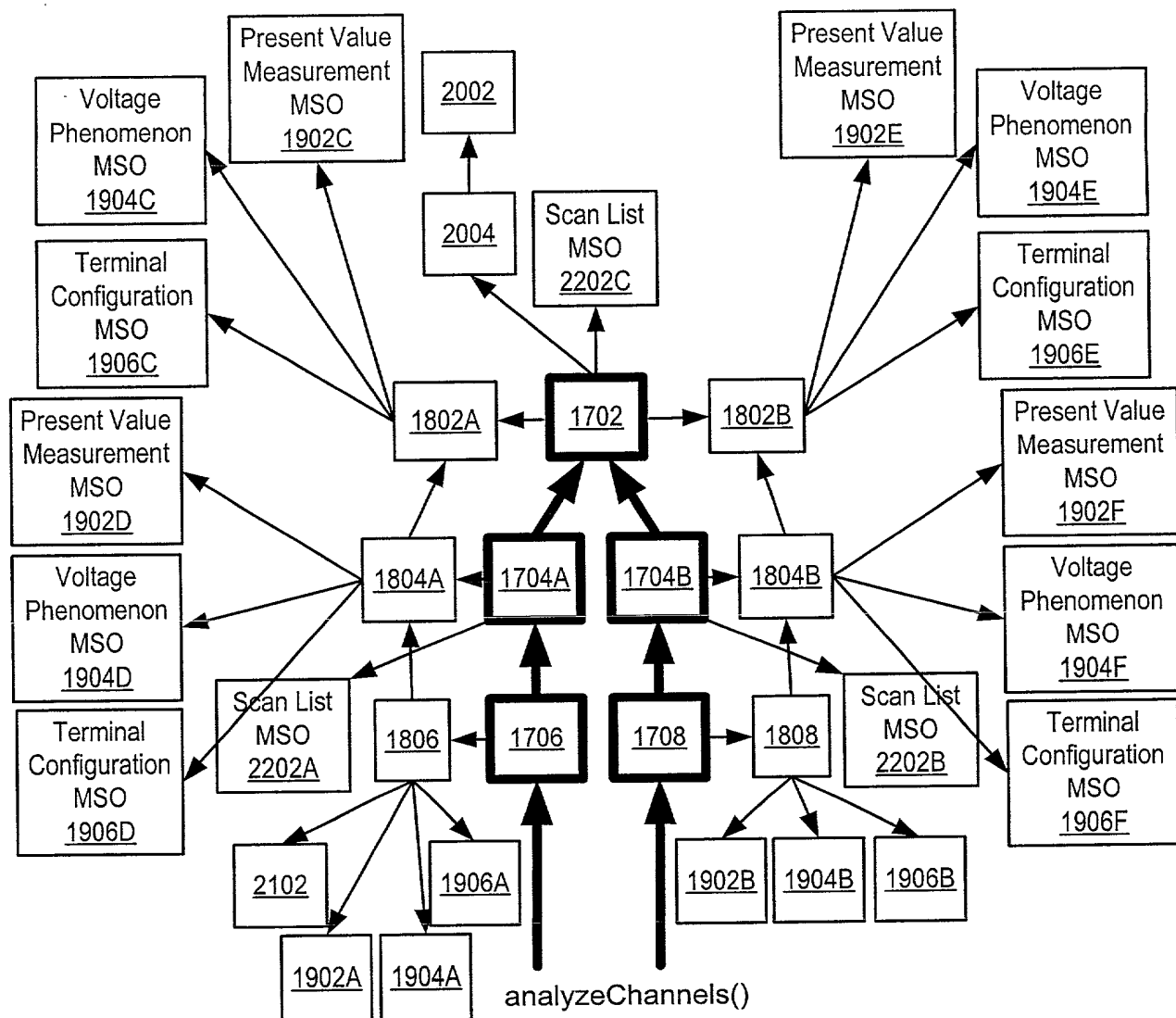


Figure 21



Analyze Channels

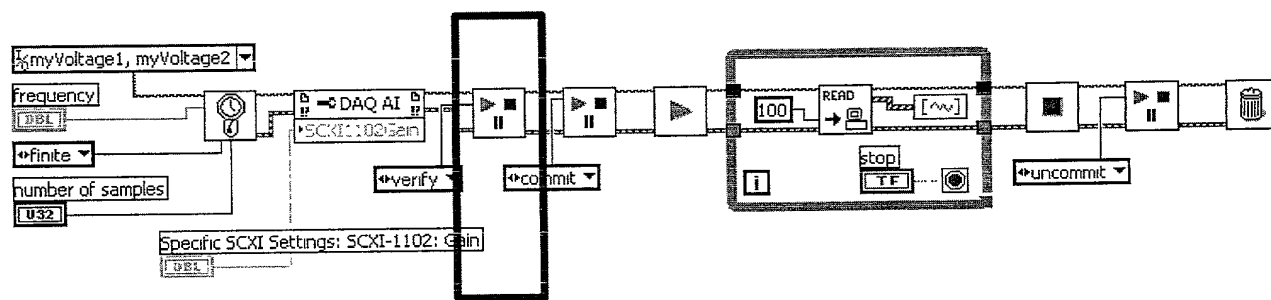
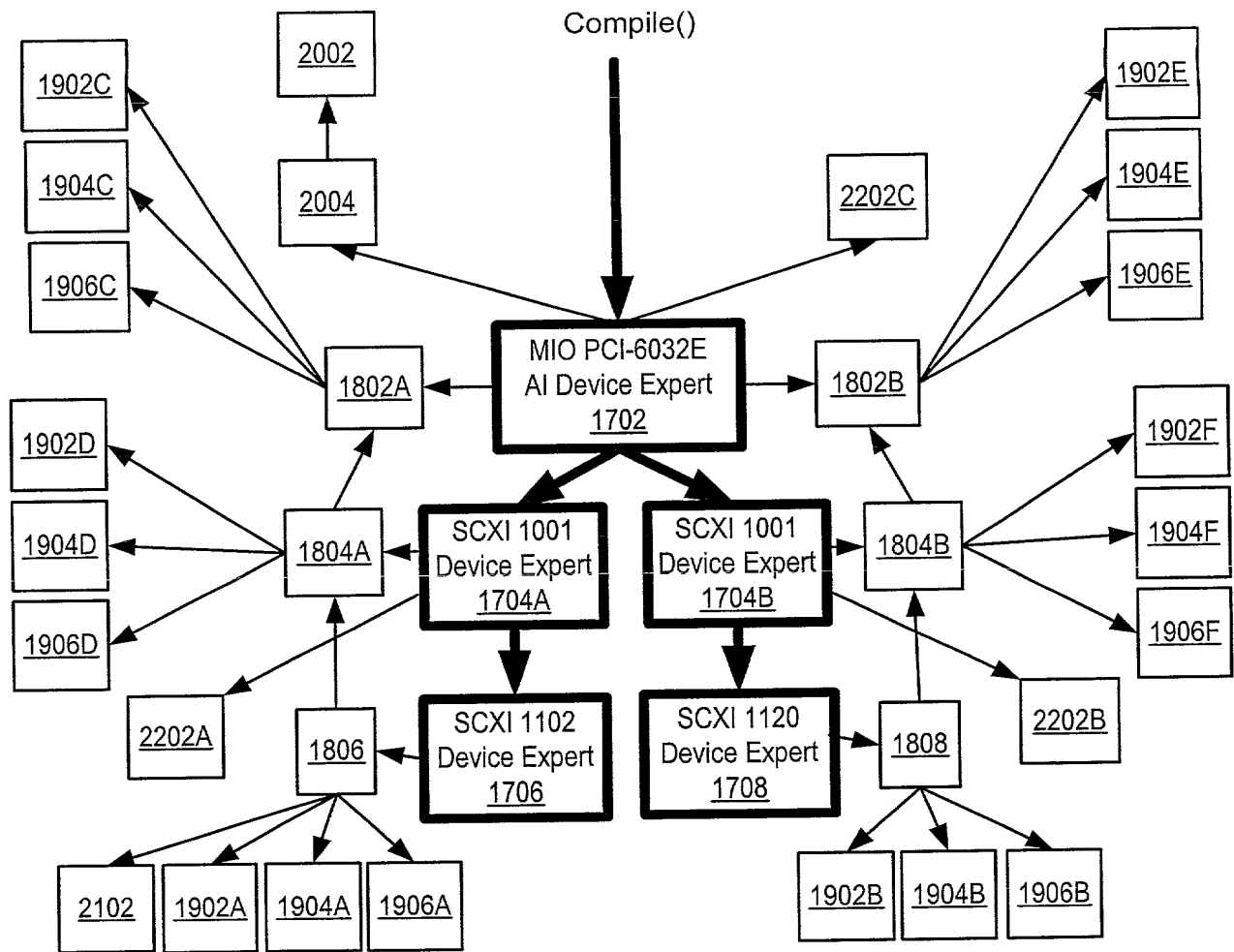


Figure 22

Figure 1: LabVIEW block diagram for the DAQ card. The diagram shows a sequence of operations: DAQ AI (SCXI-1102) with gain set to 100, followed by a verify block, a commit block, a loop containing a read block (100 samples) and a waveform graph, and finally an uncommit block. Inputs include myVoltage1, myVoltage2, frequency, finite, number of samples, and U32. A text box specifies 'Specific SCXI Settings: SCXI-1102: Gain'.

Figure 24A



Compile

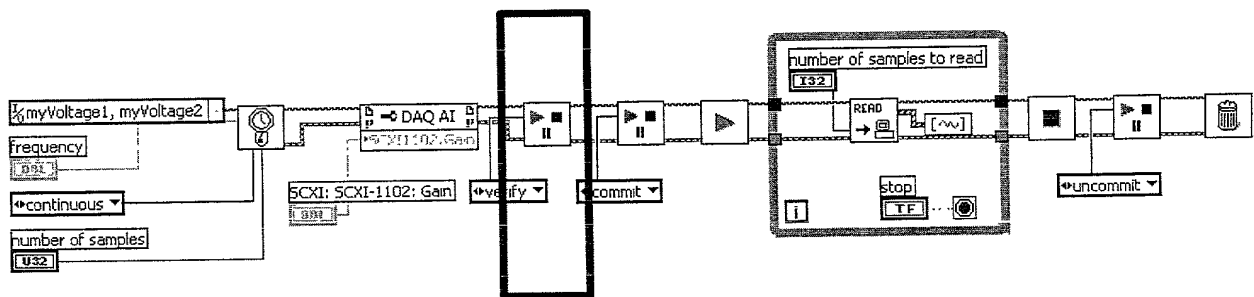
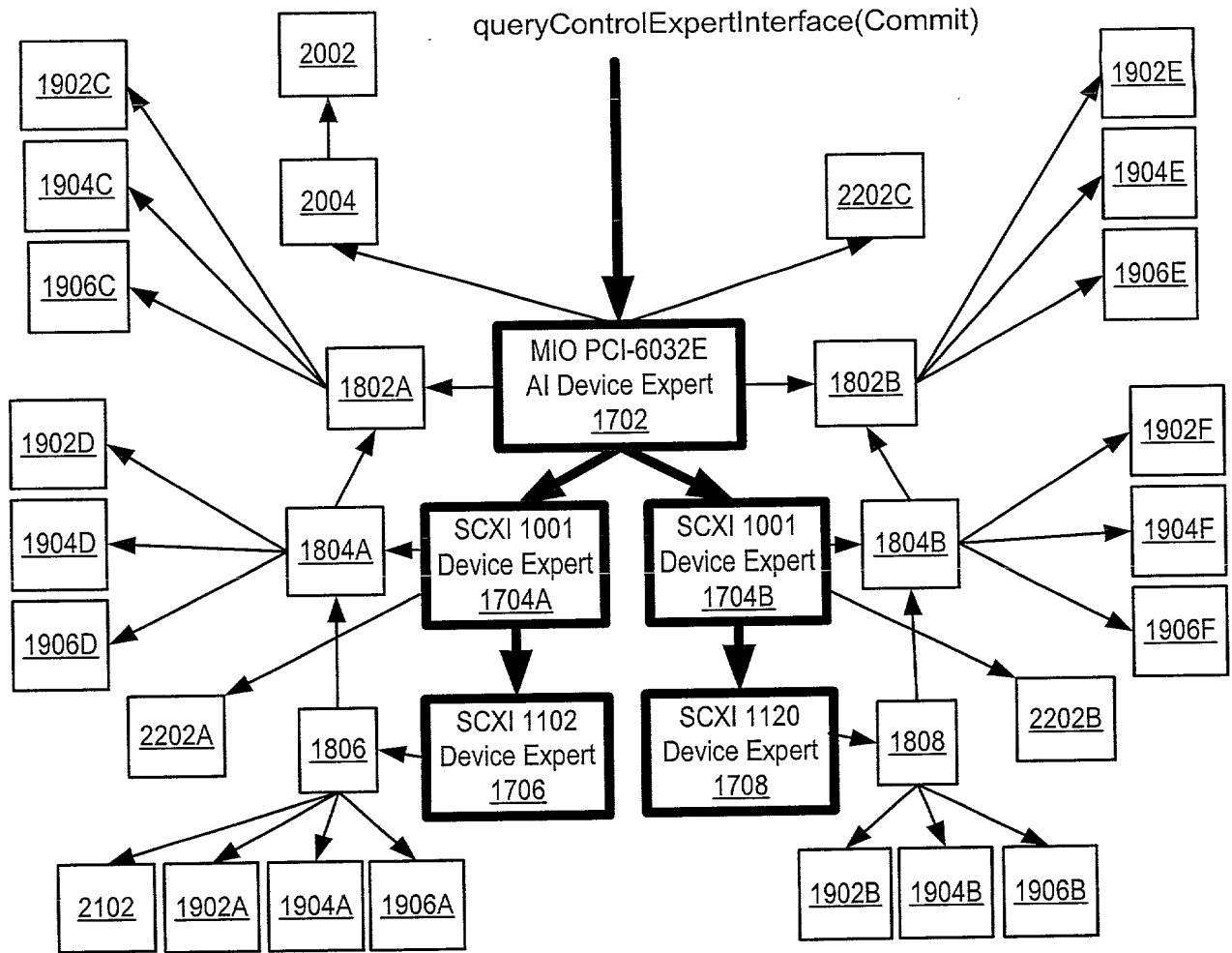


Figure 24A



Commit

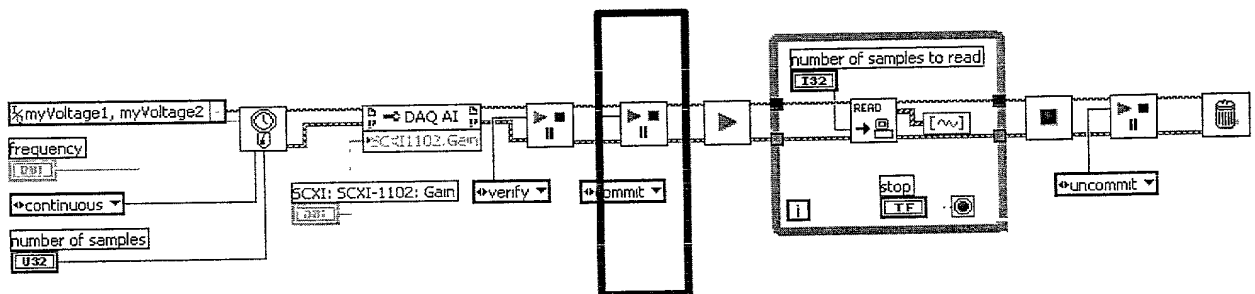


Figure 24B

10062741 2528001

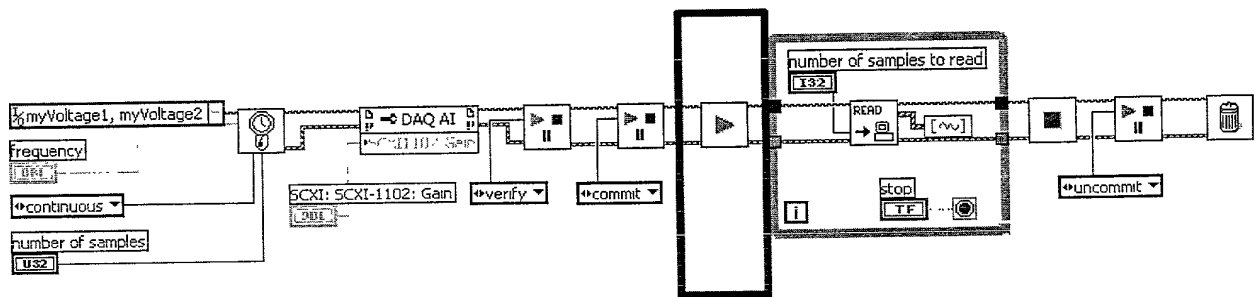
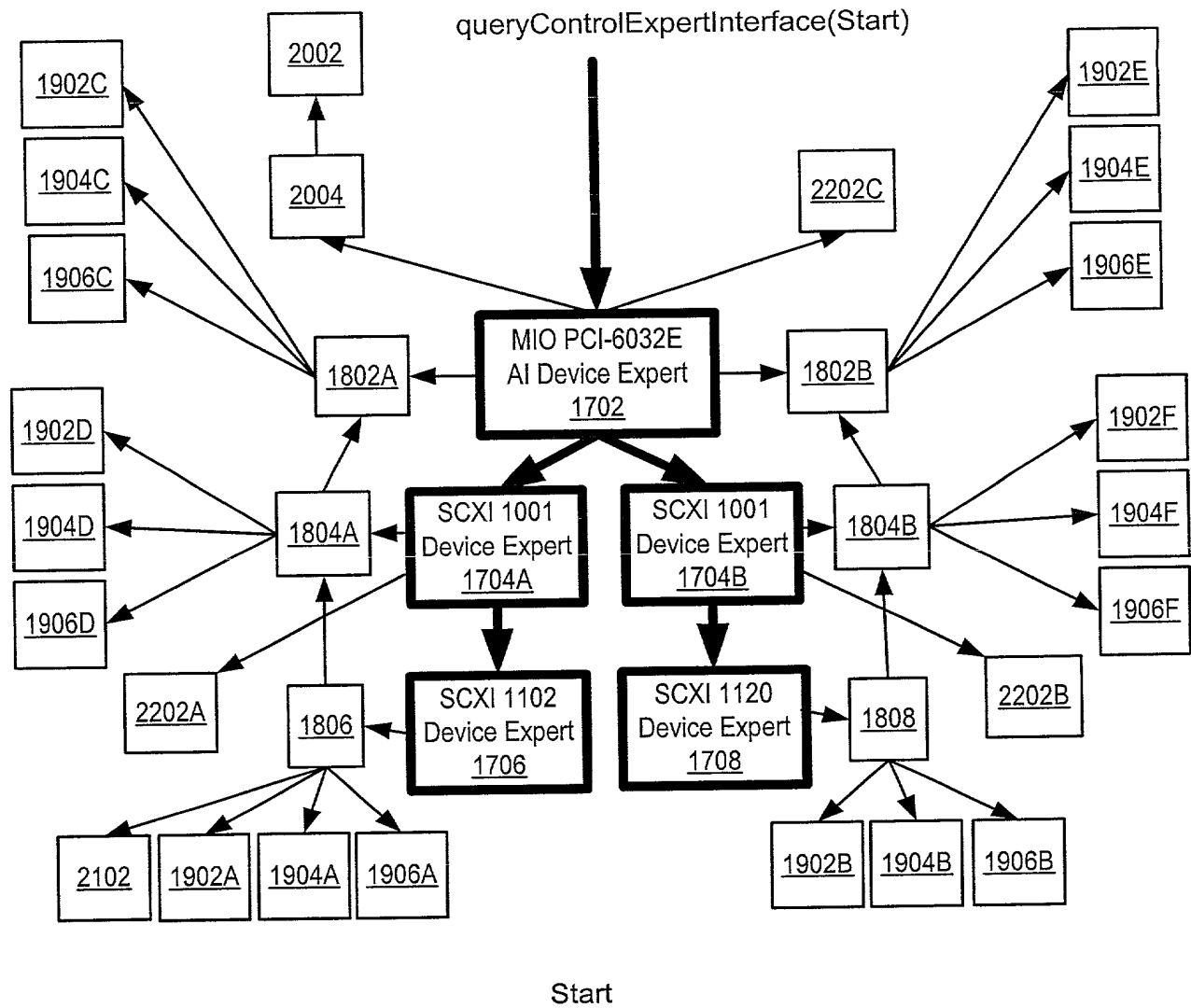
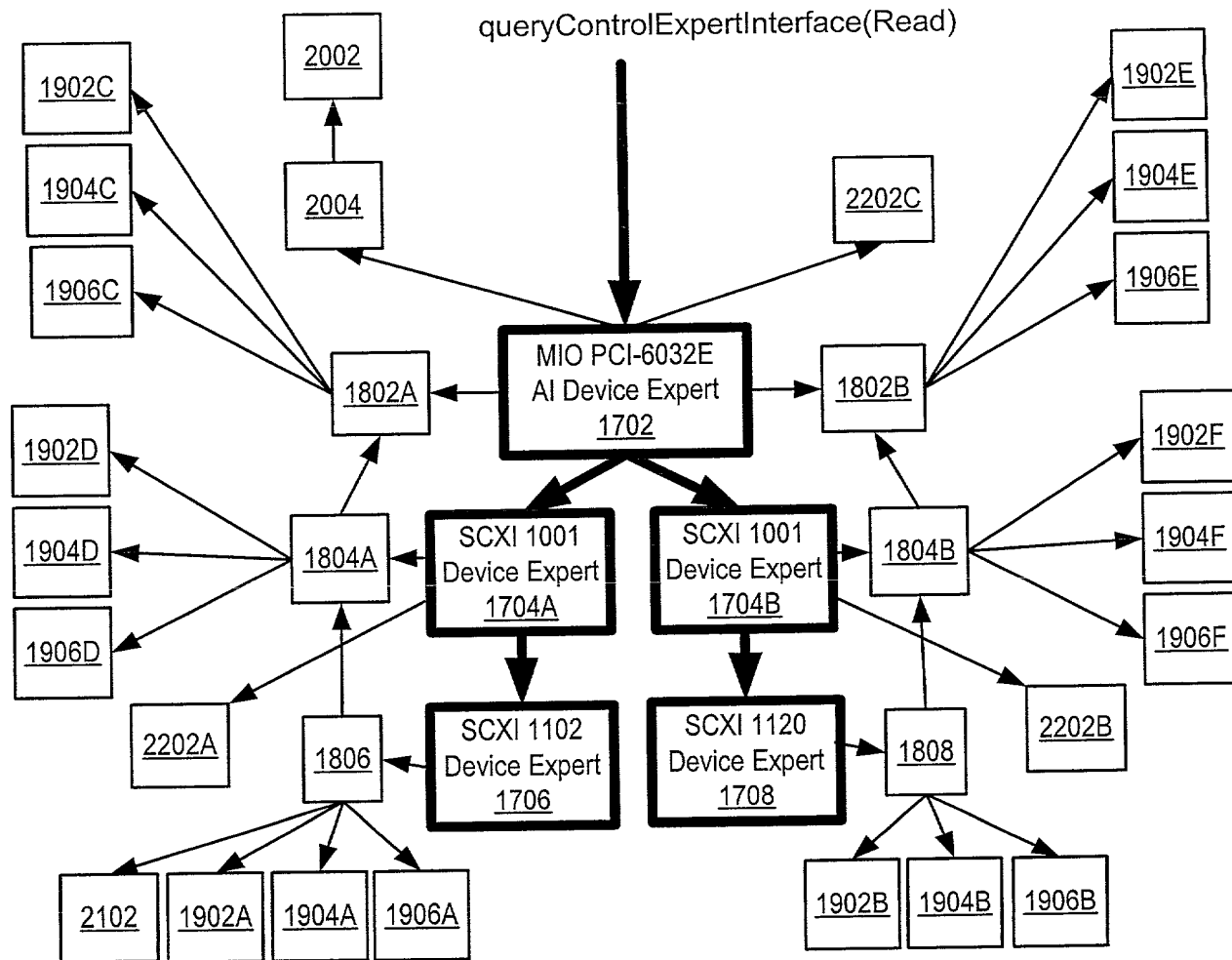


Figure 24C



Read

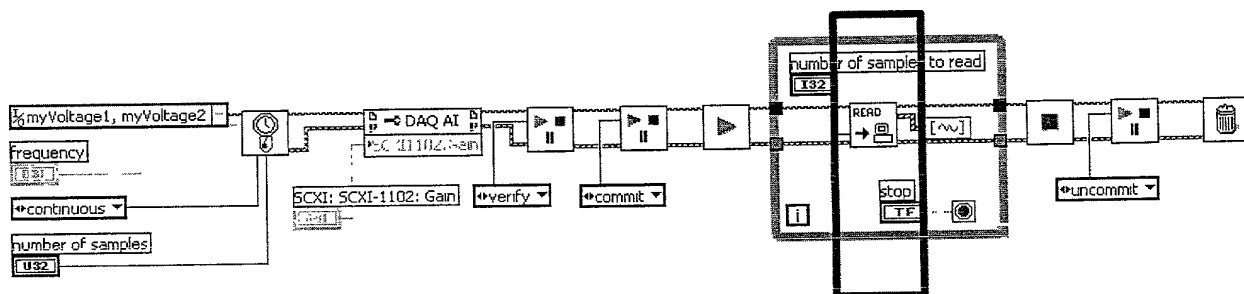
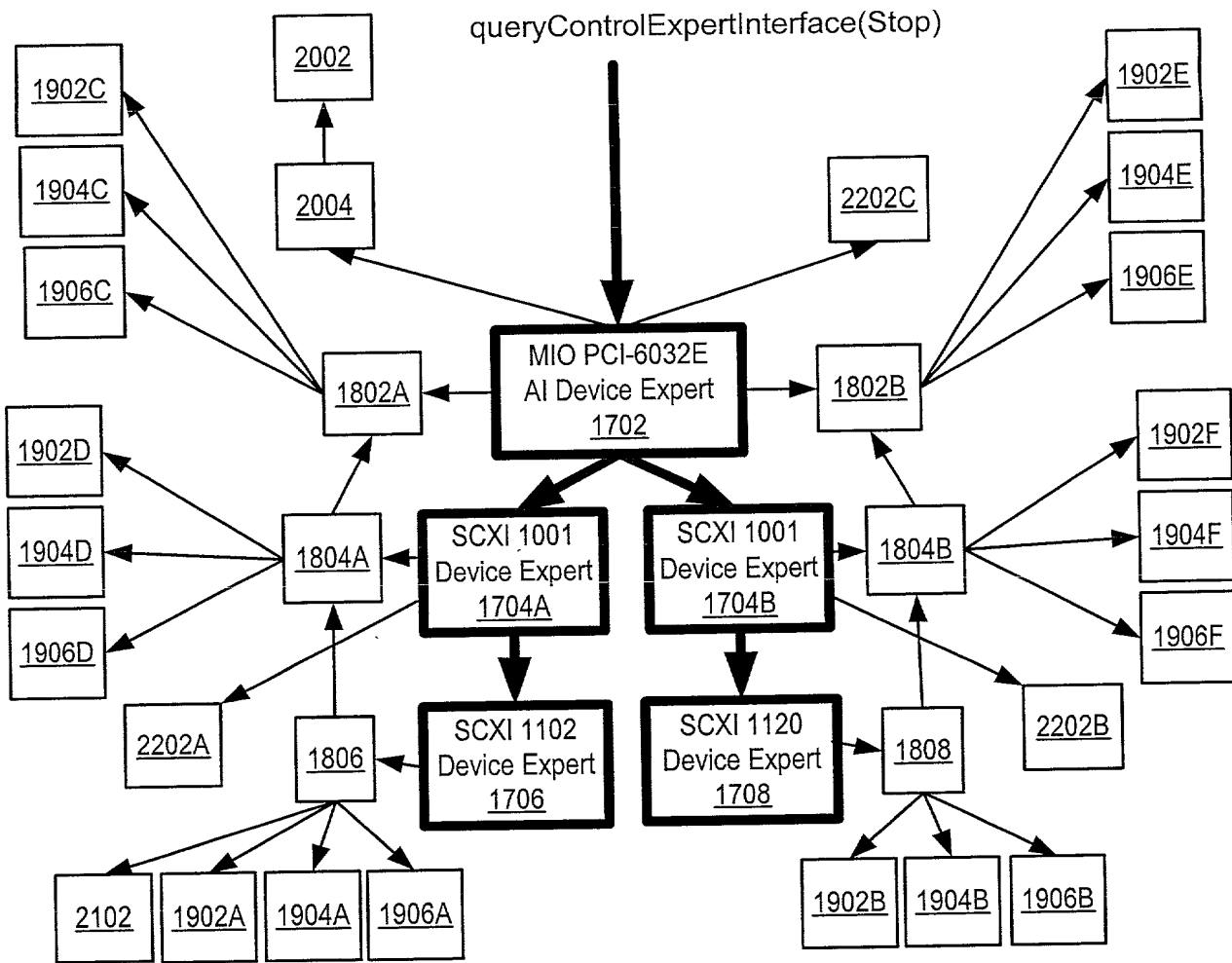


Figure 24D



Stop

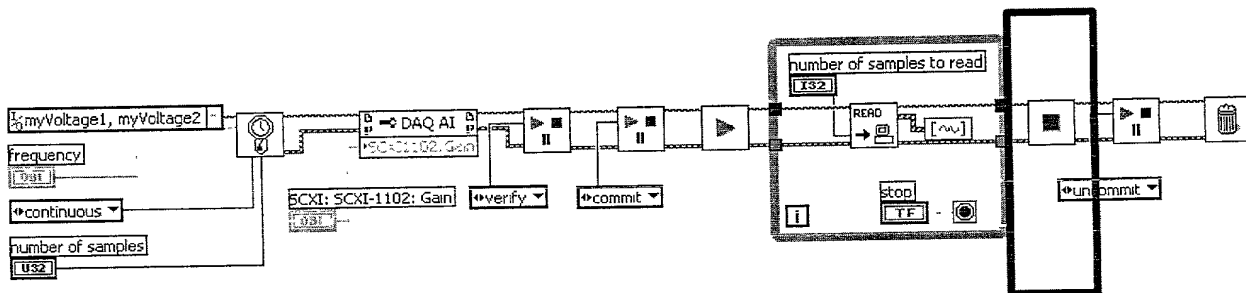
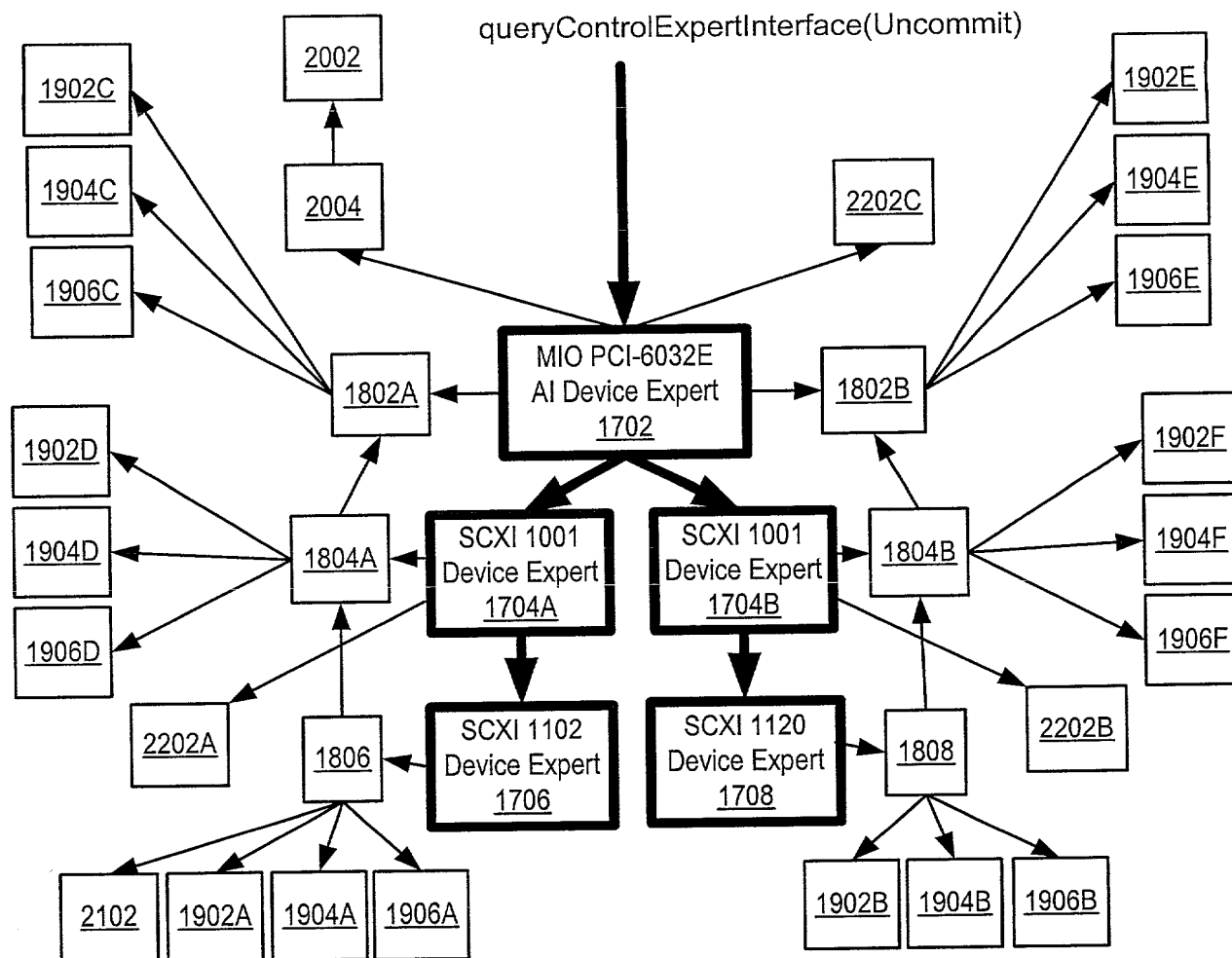


Figure 24E



Uncommit

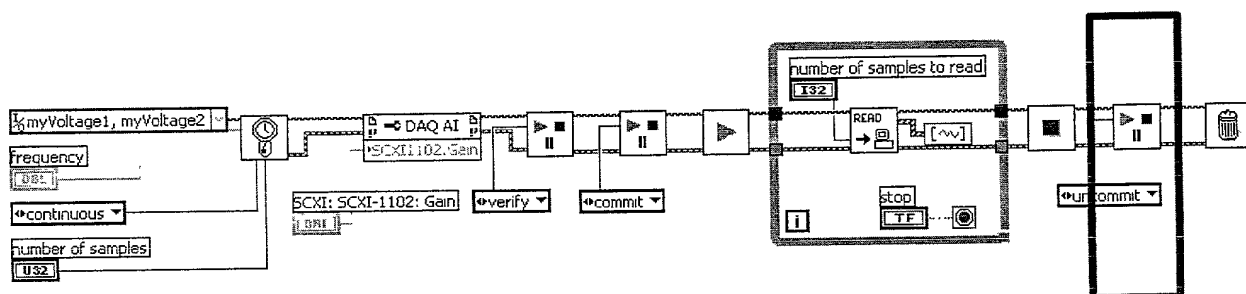


Figure 24F

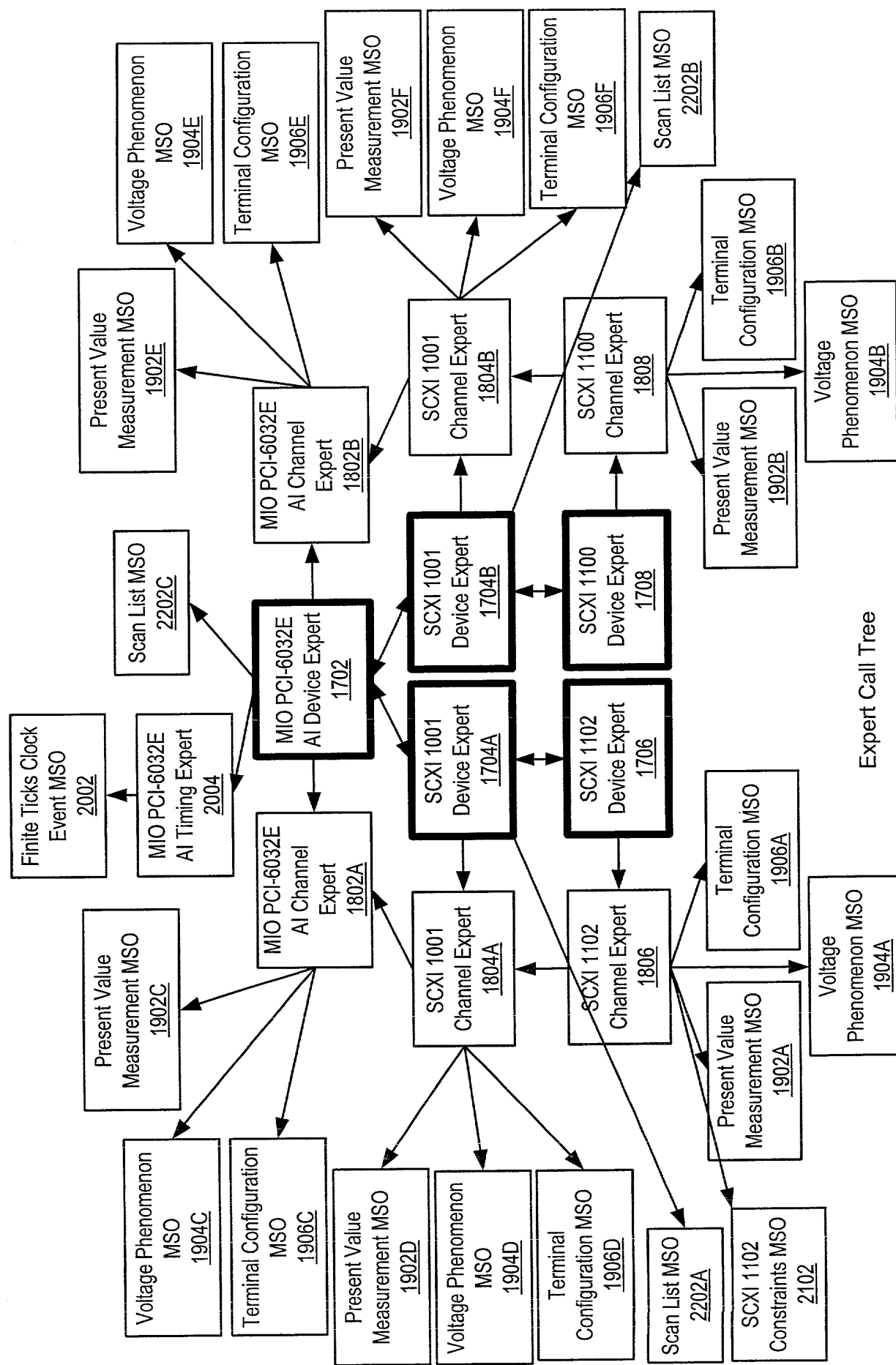


Figure 25

Use Case: Multi-Chassis SCXI Finite Acquisition Using An MIO

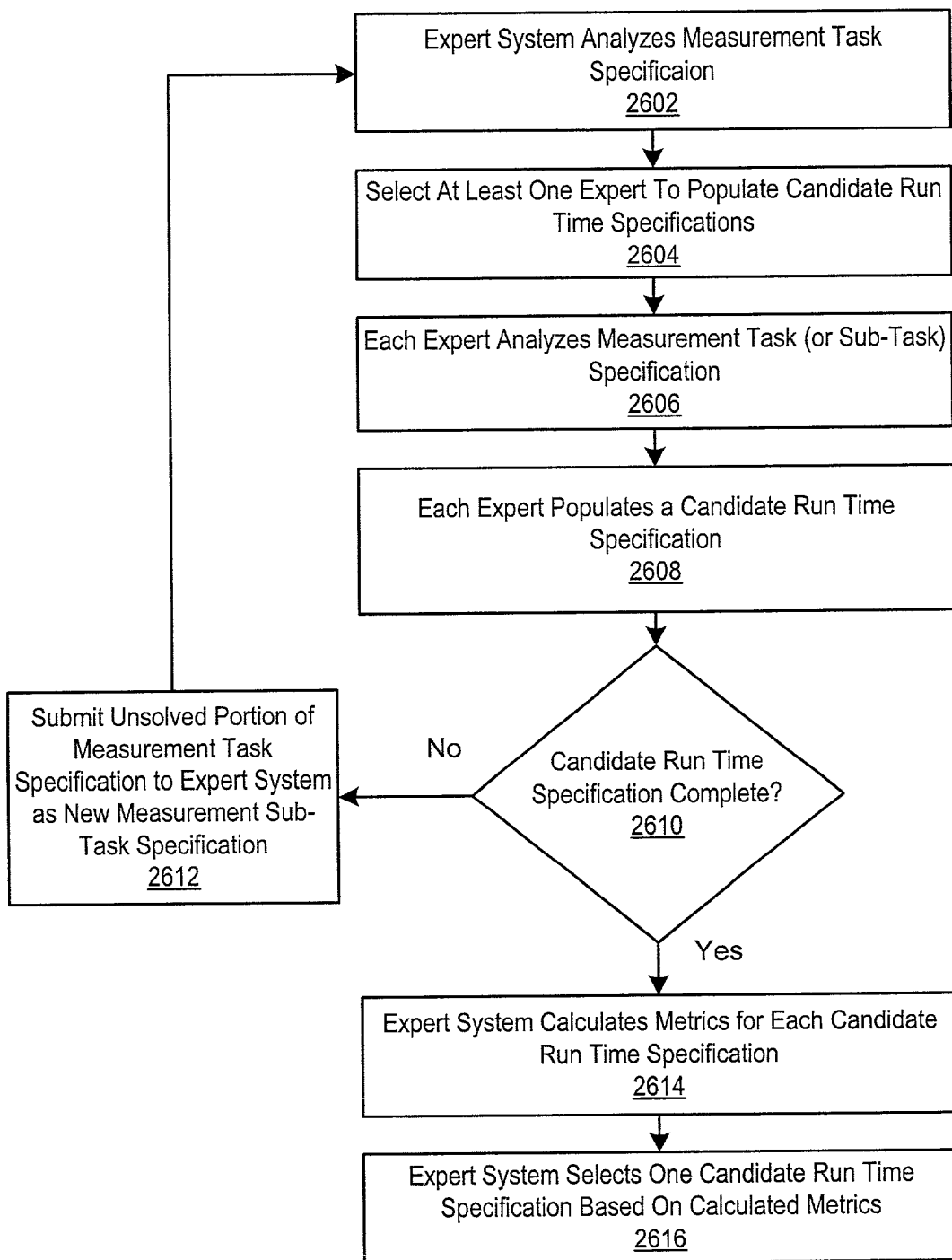


Figure 26

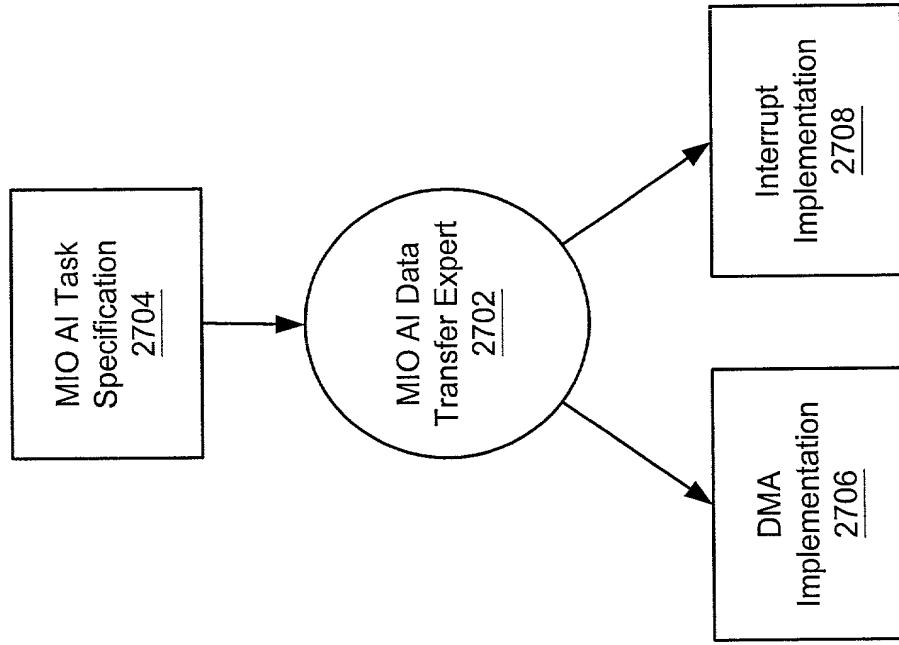


Figure 27

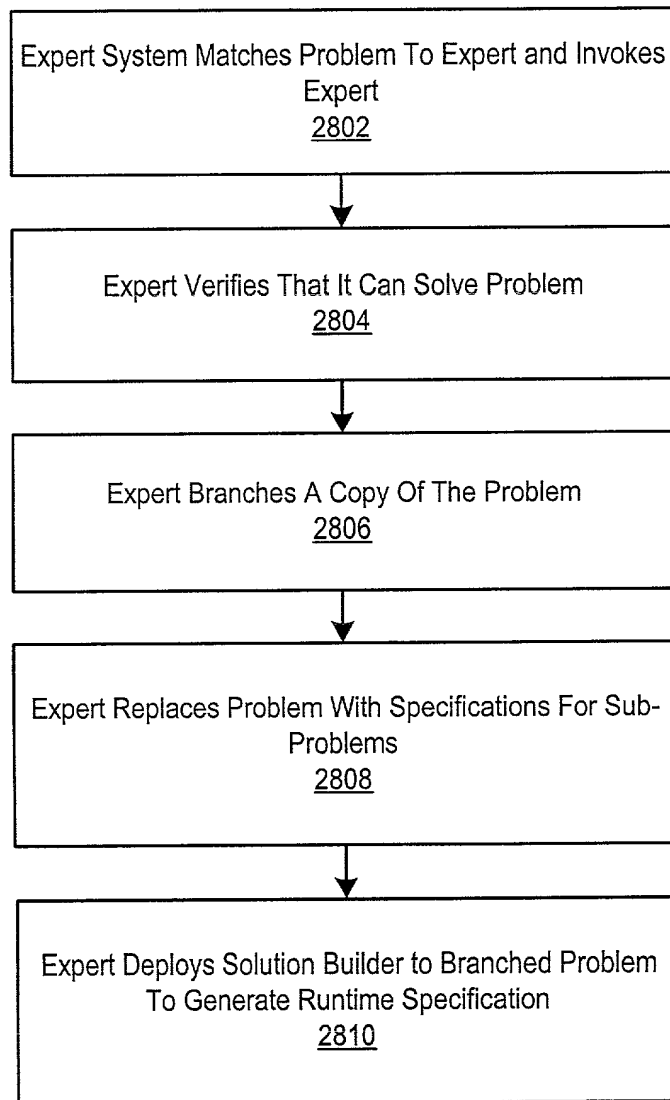


Figure 28

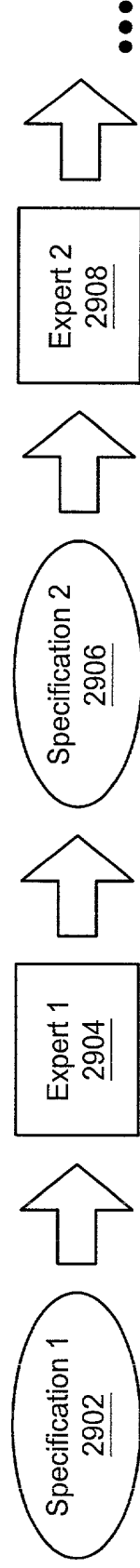


Figure 29

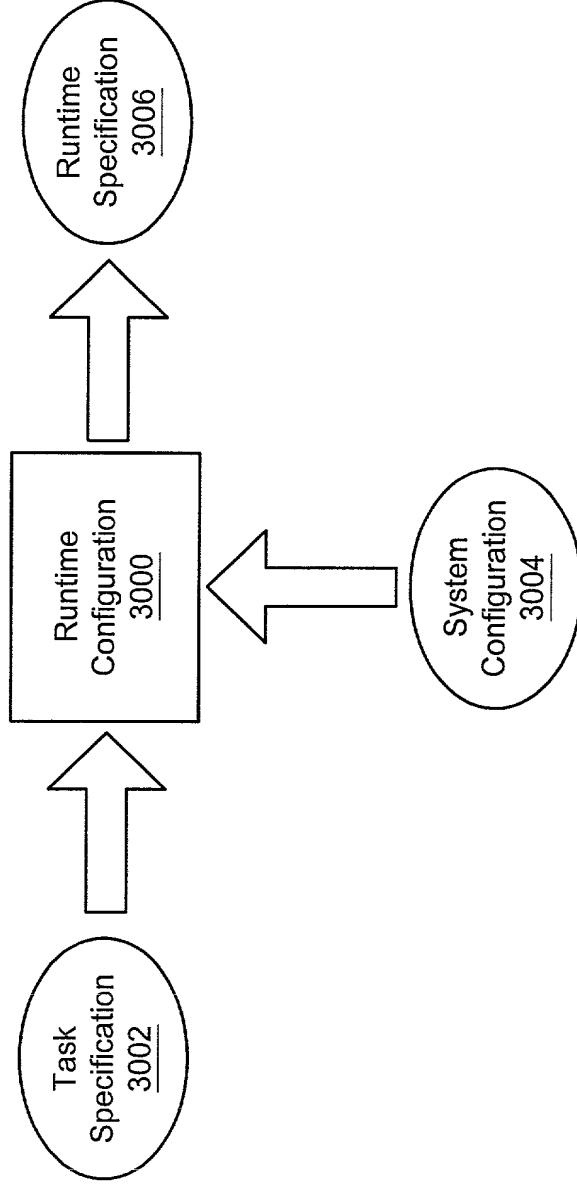


Figure 30

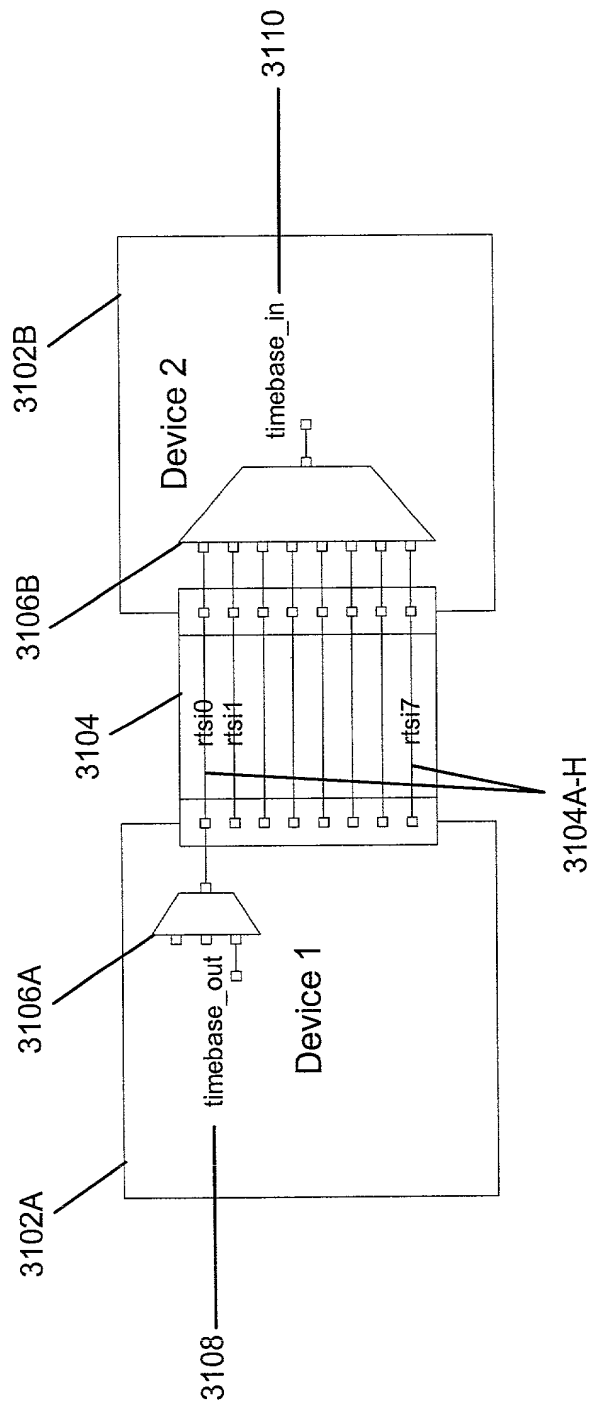


Figure 31

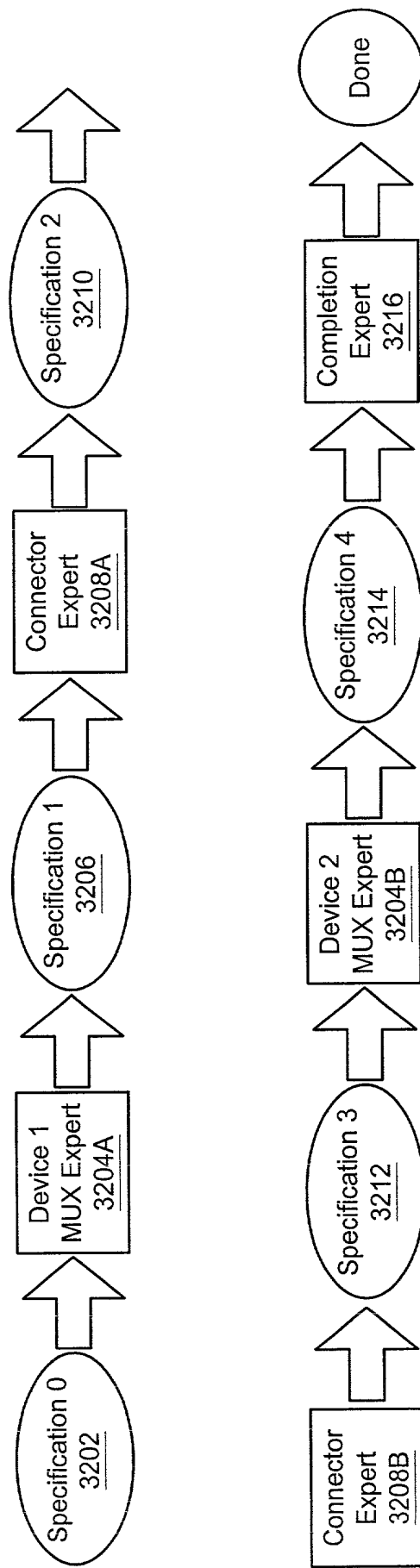


Figure 32

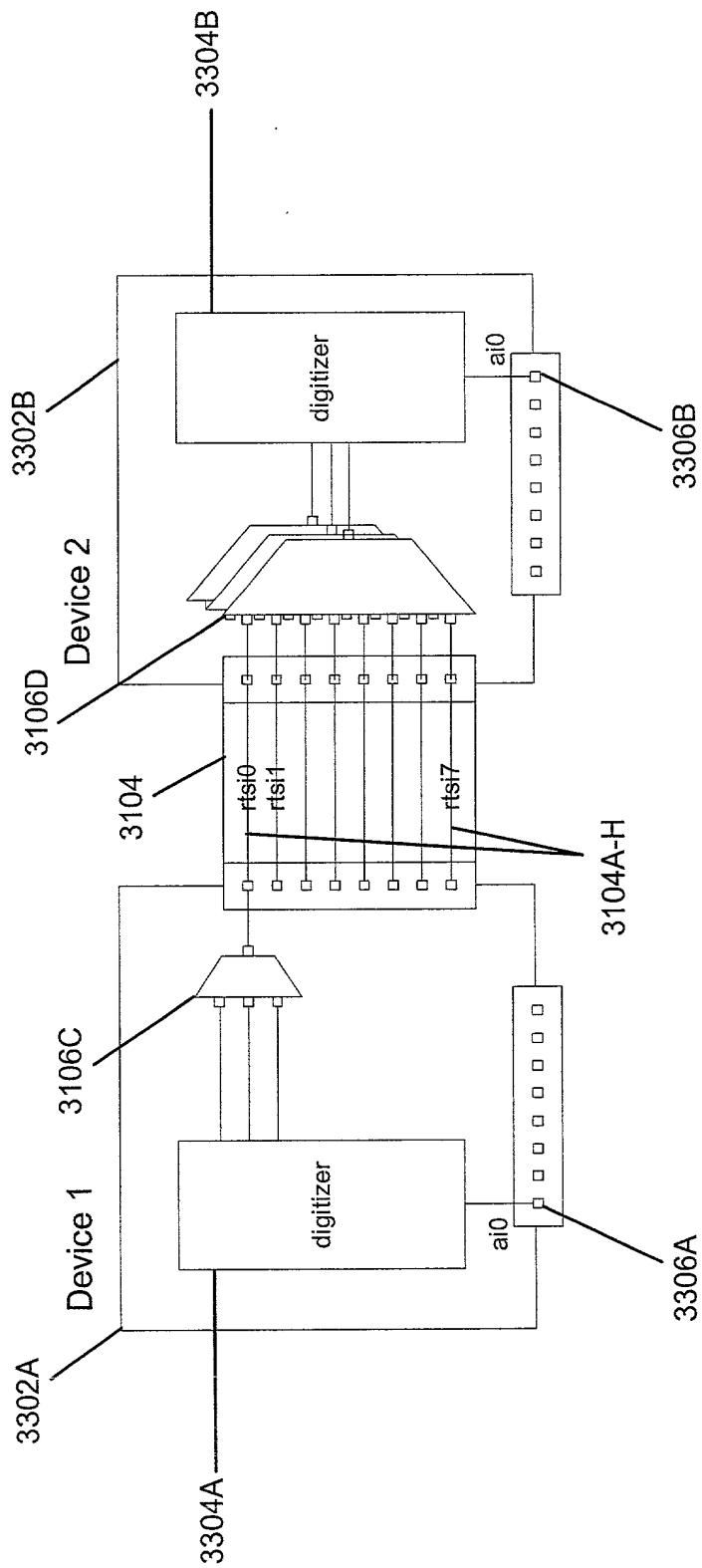


Figure 33

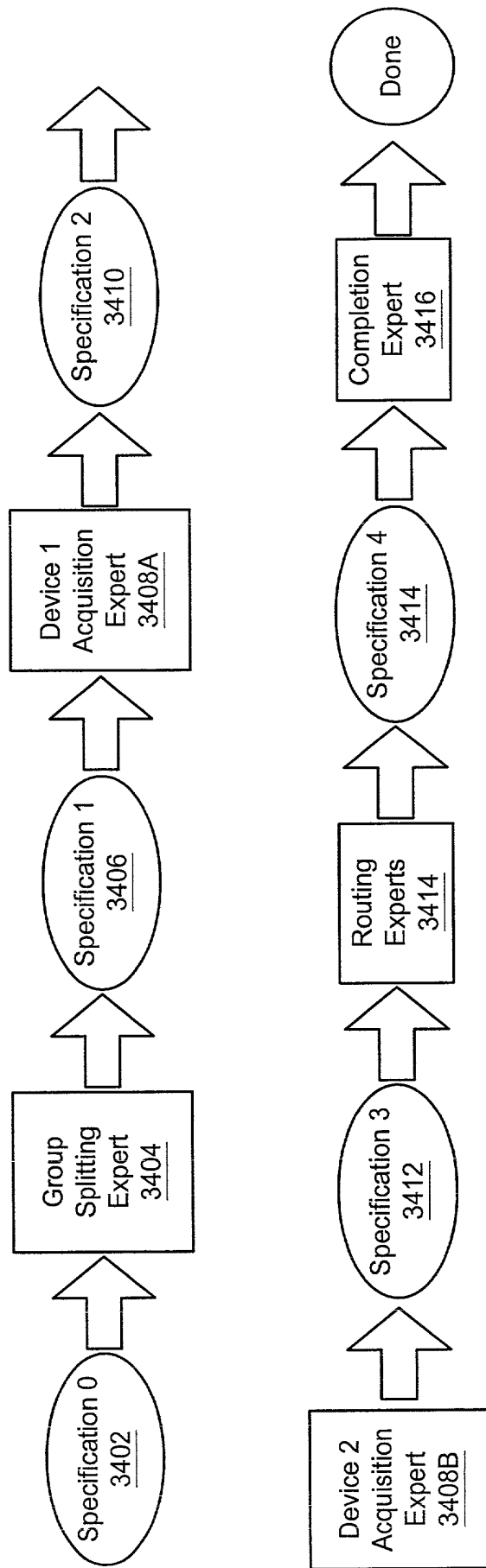


Figure 34

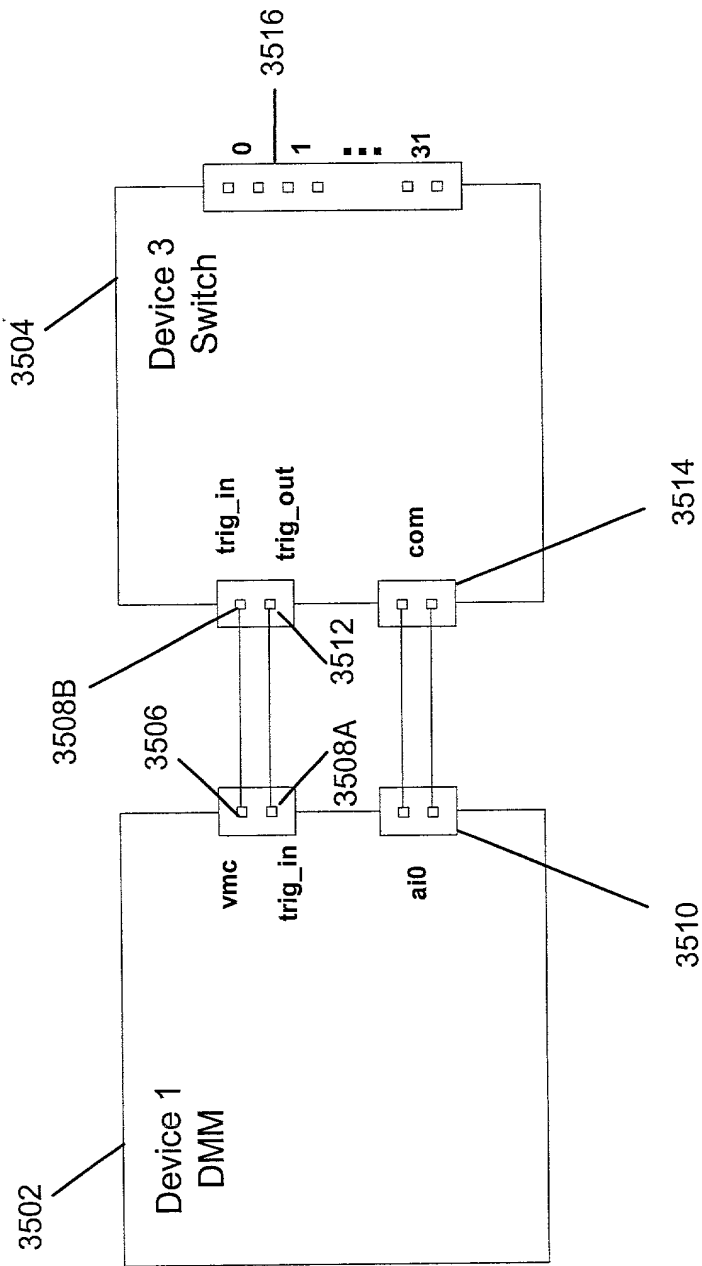


Figure 35

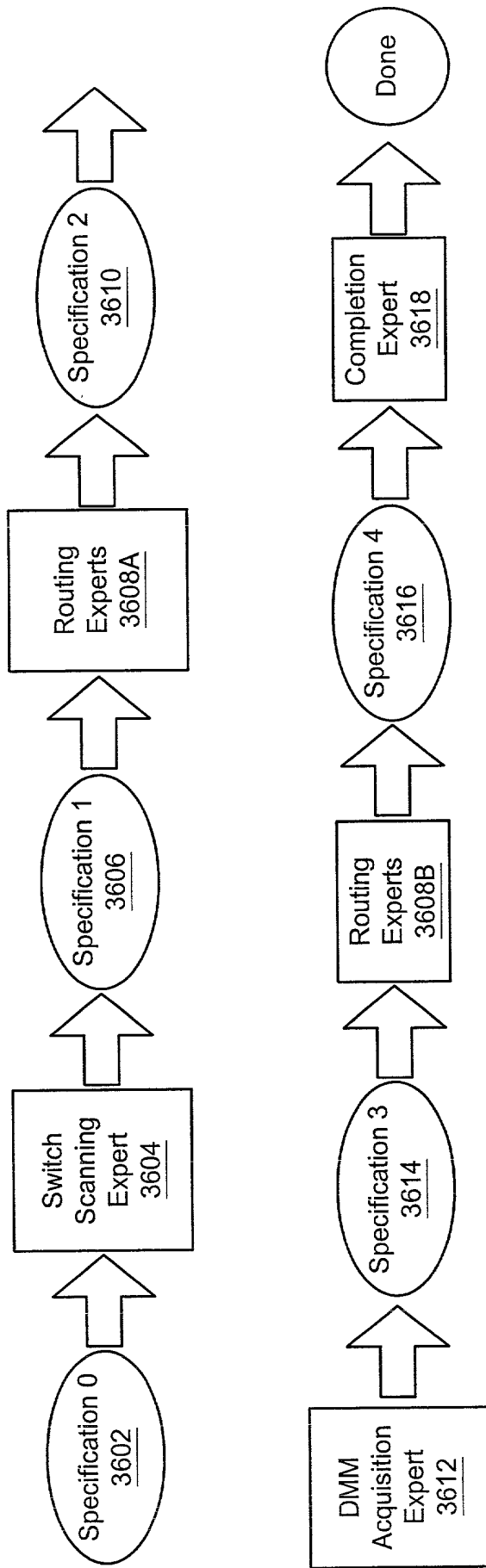


Figure 36

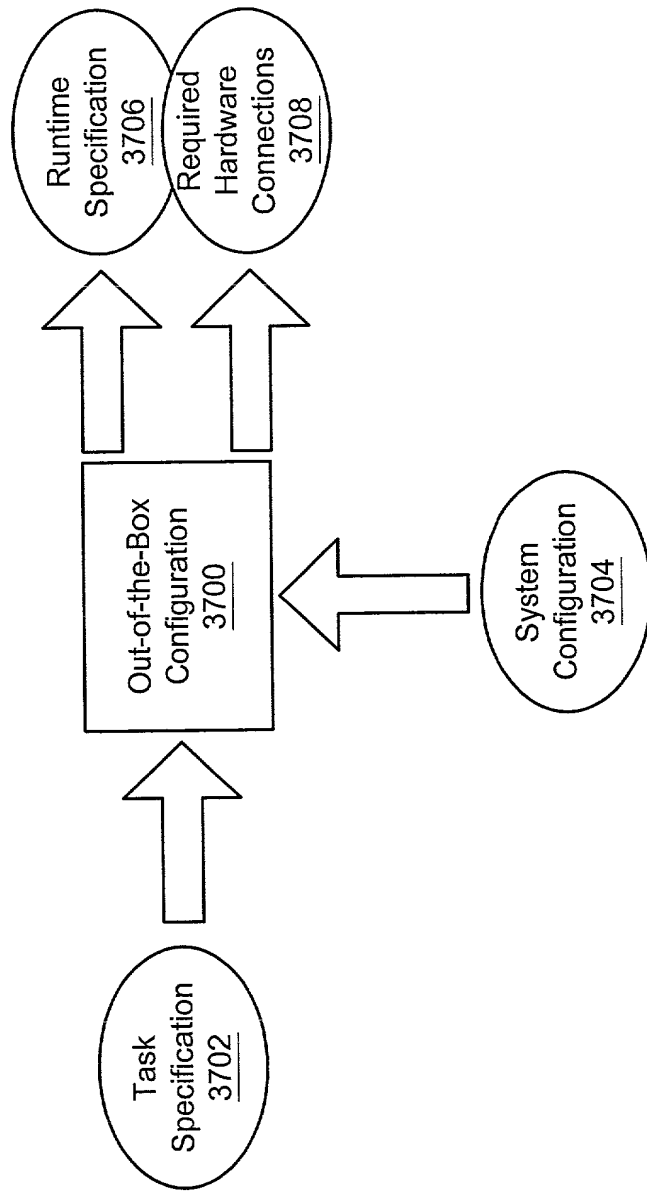


Figure 37

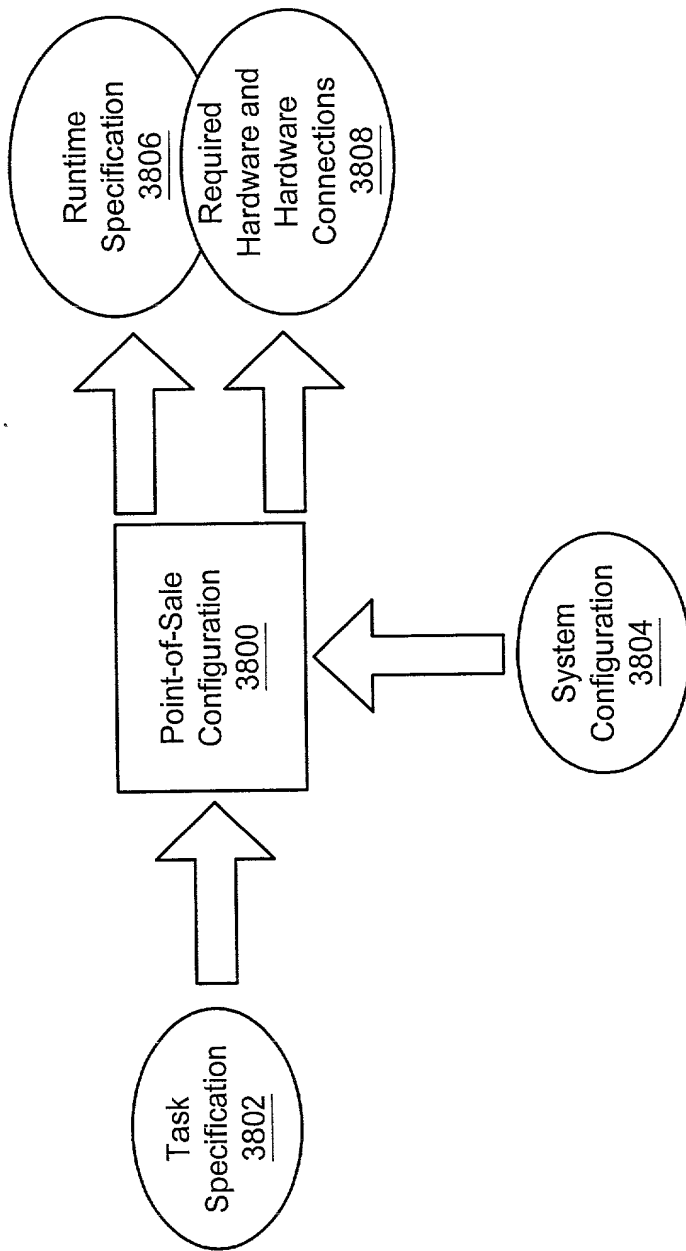
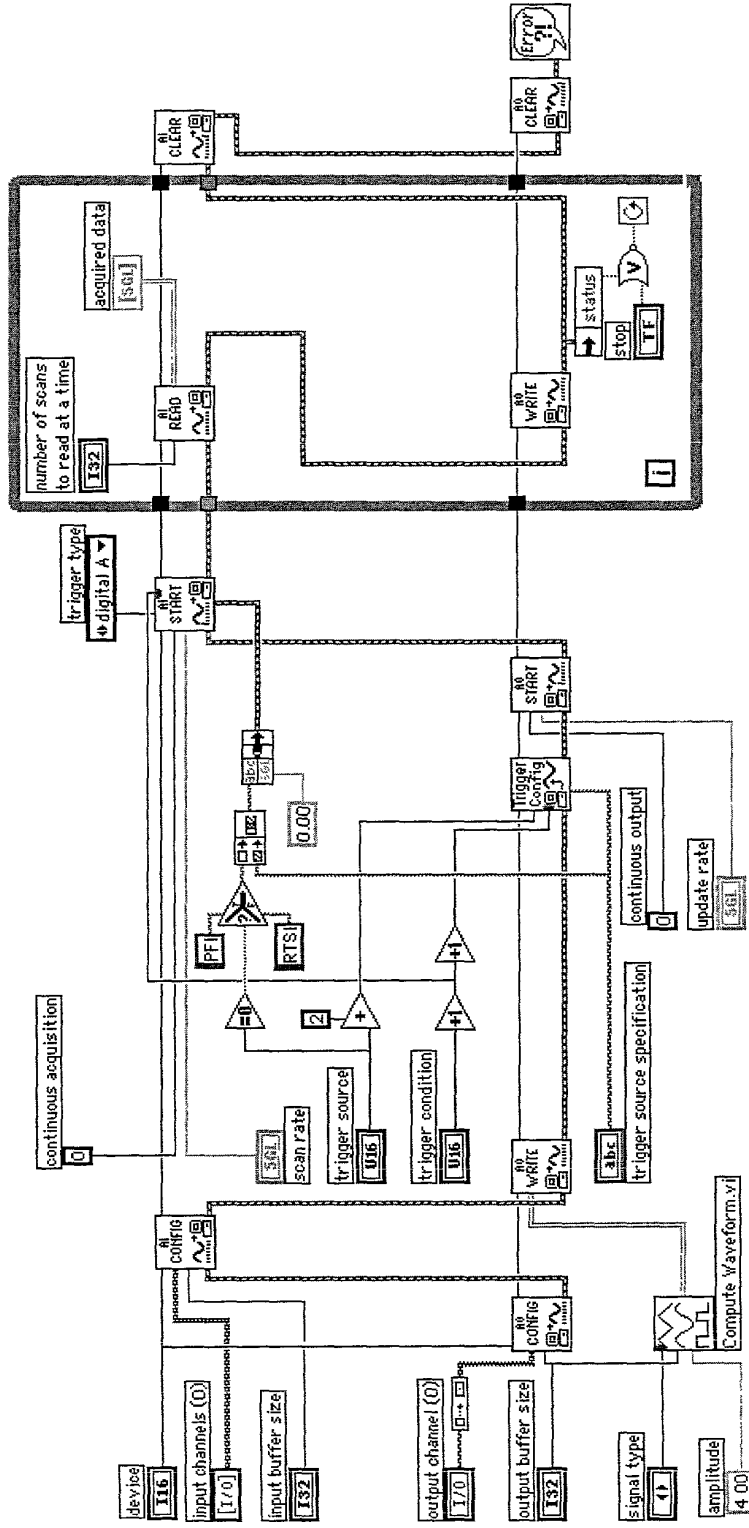
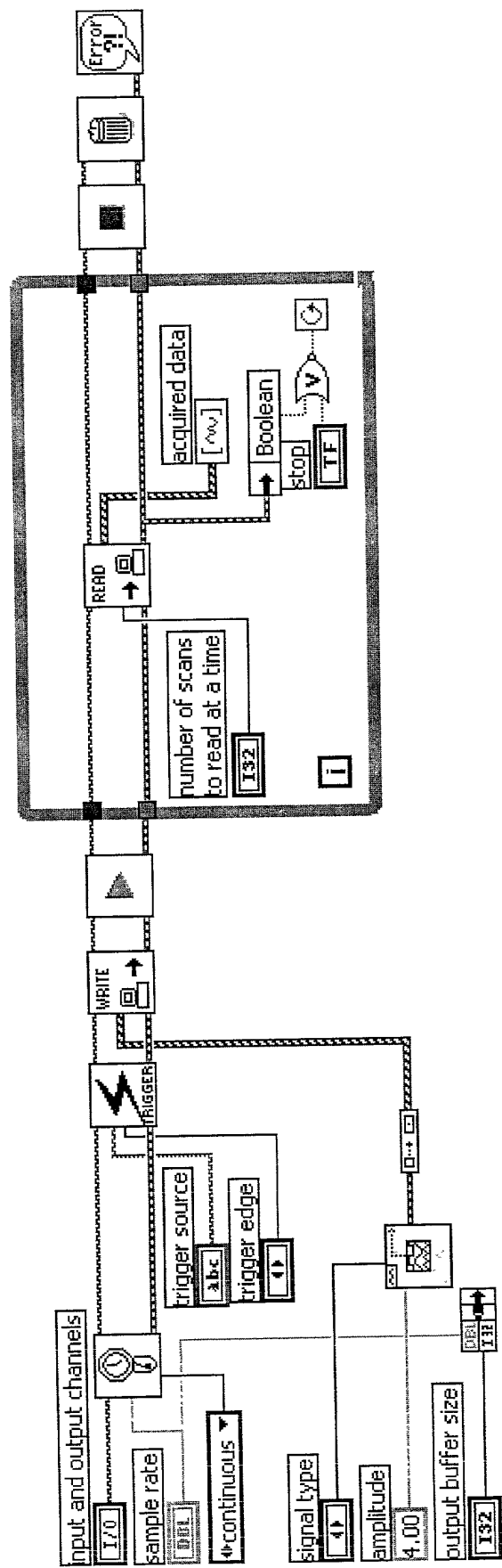


Figure 38



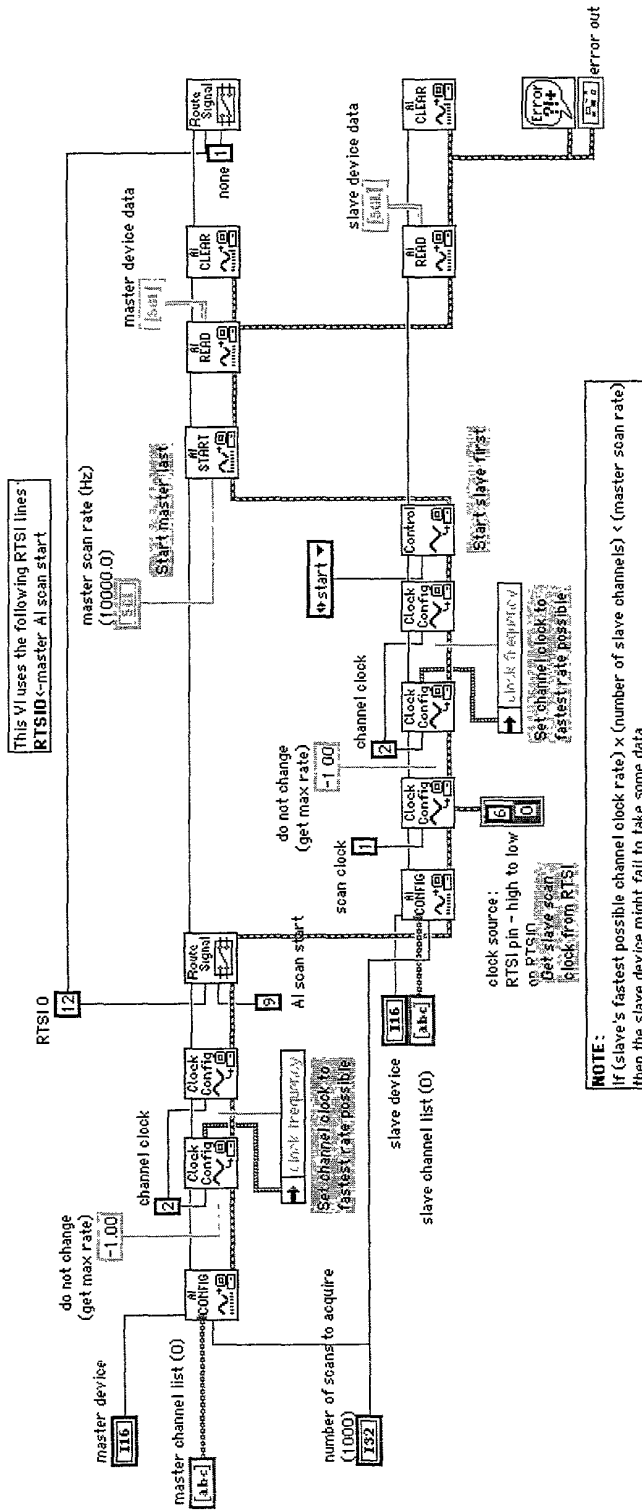
Simultaneous Triggered Buffered A/D AO (Prior Art)

Figure 40A



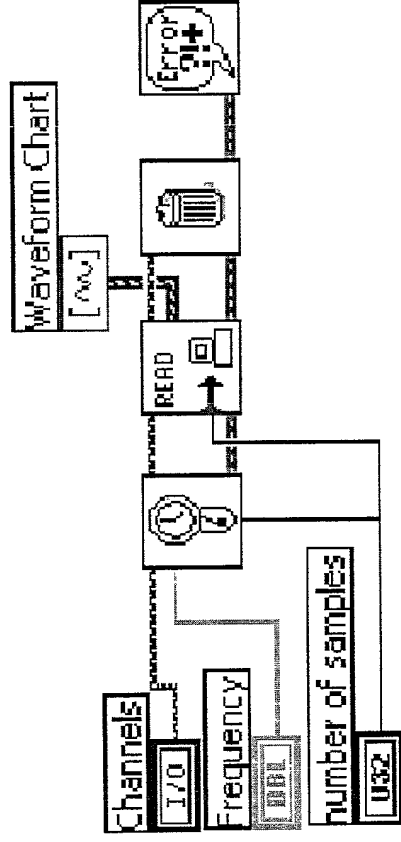
Simultaneous Triggered Buffered AI/AO

Figure 40B



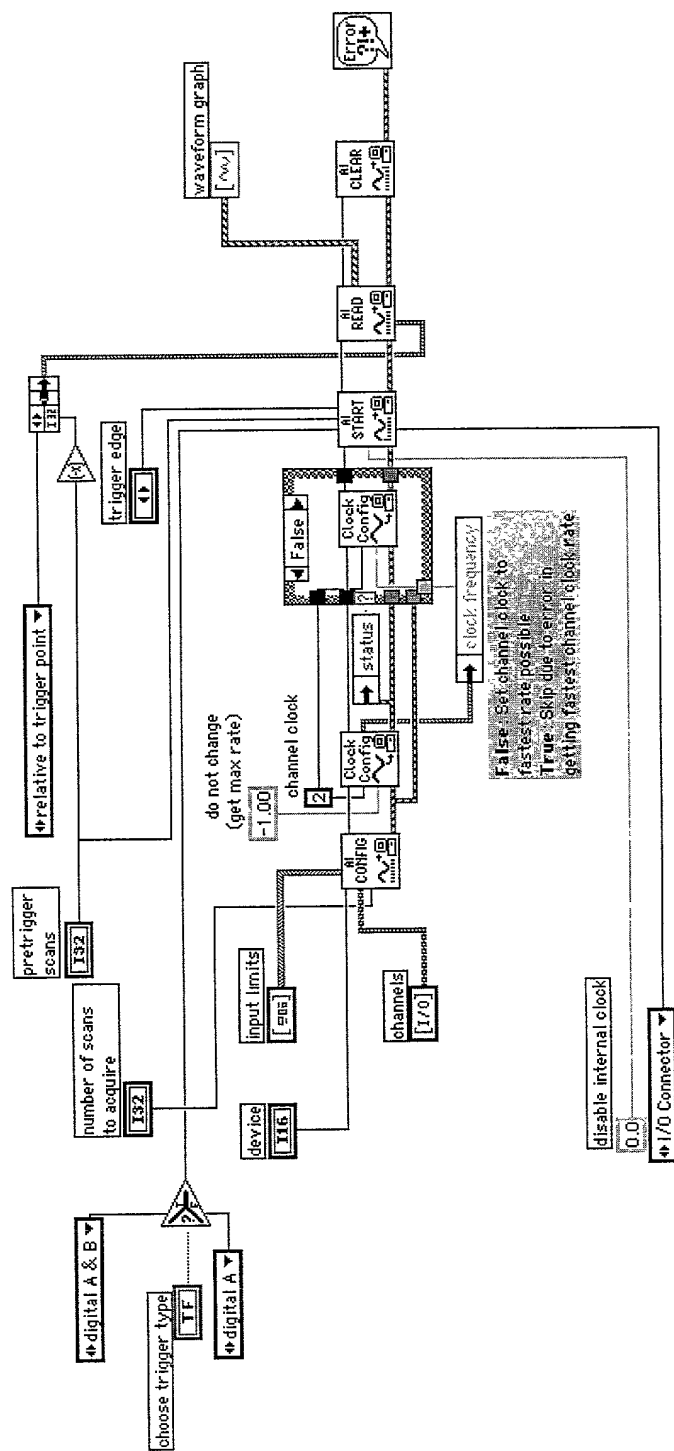
Sharing Scan Clock Across Two E-Series Devices (Prior Art)

Figure 41A



Sharing Scan Clock Across Two E-Series Devices

Figure 41B



Acquire N Scans External Scan Clock Digital Trigger (Prior Art)

Figure 43A (Prior Art)

The screenshot displays the NI-DAQmx software interface for configuring a voltage measurement task. The main window is titled "Voltage Measurement Setup" and contains a "Measurements List" on the left and a "Sensors & Scaling" section on the right. The "Measurements List" shows three channels: Voltage 0, Voltage 1, and Voltage 2. The "Sensors & Scaling" section includes a "Max" value of 10.0000 V and a "Min" value of -10.0000 V. The "Measurement Timing" window is also visible, showing a "Mode" of "Acquire a Single Sample" and a "Sampling Rate" of 1000 Samples.

Voltage Measurement Setup

Measurements List

- Voltage 0
- Voltage 1
- Voltage 2
- Voltage 3

Sensors & Scaling

Max: 10.0000 V
Min: -10.0000 V

Measurement Timing

Mode

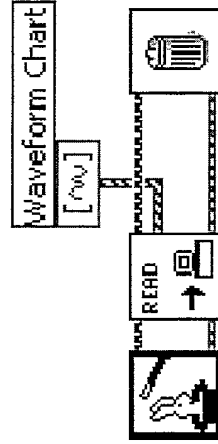
- Acquire a Single Sample
- Acquire N Samples
- Continuously Acquire

Sampling Info

1000 Samples
10000.00 Rate (Hz)

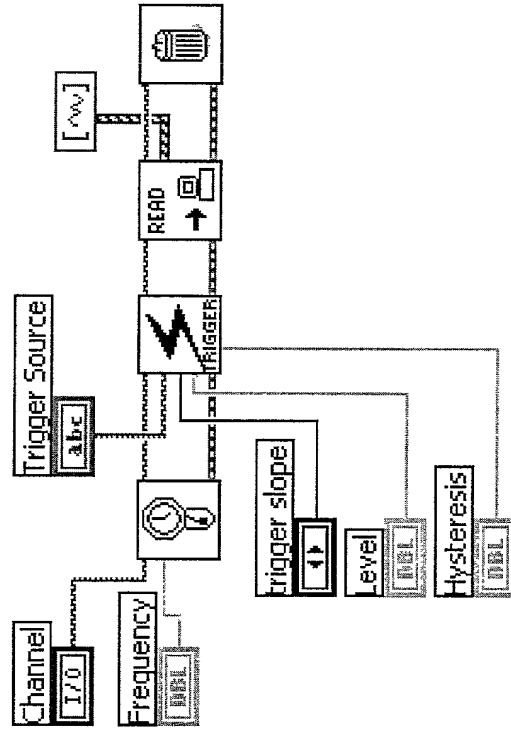
Figure 43B

Figure 43C



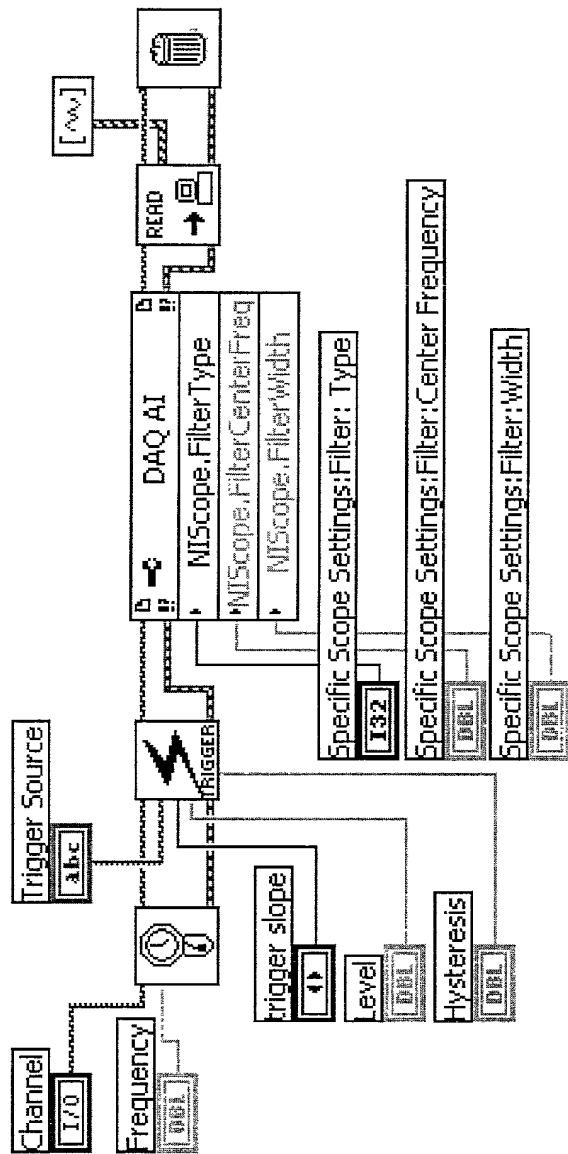
Acquire N Scans External Scan Clock Digital Trigger

Figure 43D



Triggered Acquisition With E-Series Device

Figure 44A



Triggered Acquisition With High Speed Digitizer With Filtering

Figure 44C

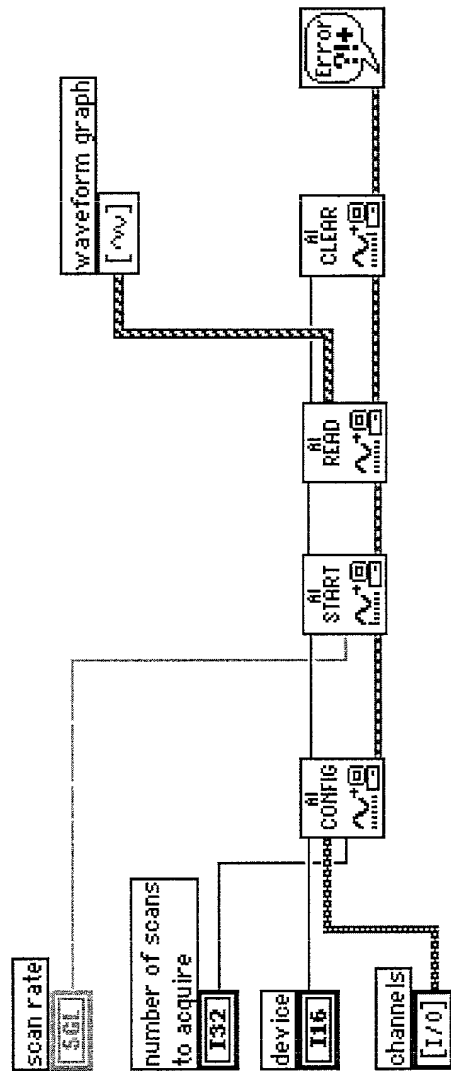
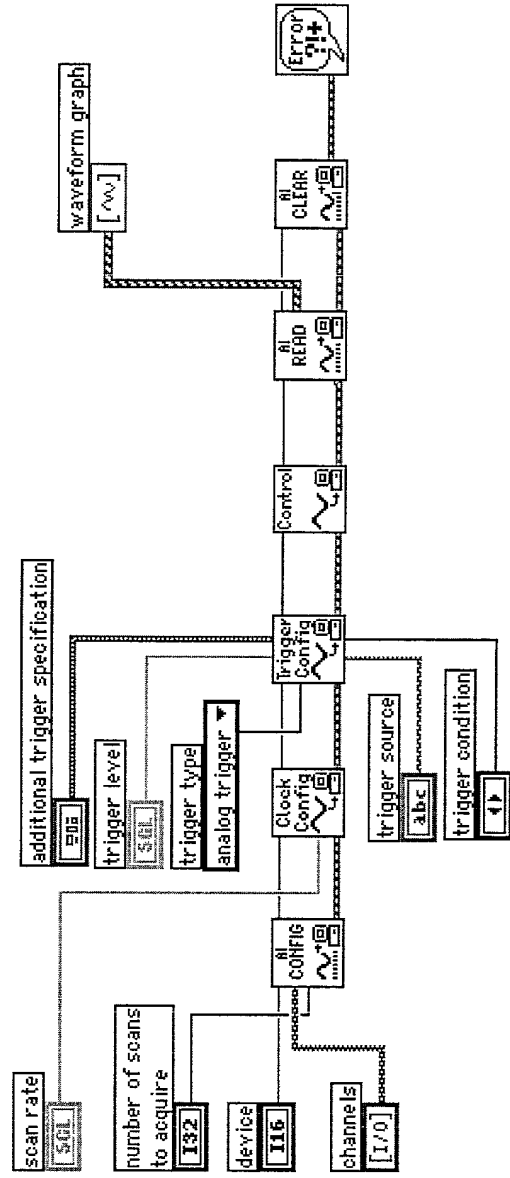
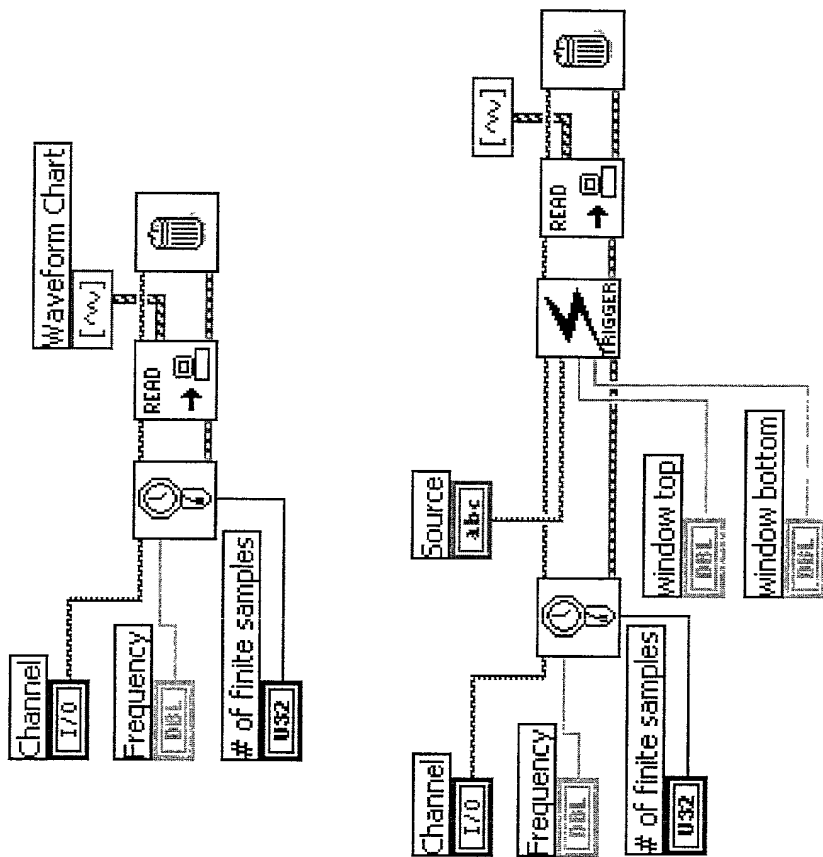


Figure 45A



Changes For Analog Window Triggering (Prior Art)

Figure 45B



Analog Window Triggering

Figure 45C